TECHNOLOGY FOR AIRCRAFT NOISE REDUCTION

HEARING

BEFORE THE

SUBCOMMITTEE ON TRANSPORTATION,
AVIATION AND MATERIALS

OF THE

COMMITTEE ON
SCIENCE, SPACE, AND TECHNOLOGY
U.S. HOUSE OF REPRESENTATIVES

ONE HUNDRED FIRST CONGRESS

SECOND SESSION

SEPTEMBER 27, 1990

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TECHNOLOGY FOR AIRCRAFT NOISE REDUCTION

THURSDAY, SEPTEMBER 27, 1990

U.S. HOUSE OF REPRESENTATIVES,
COMMITTEE ON SCIENCE, SPACE, AND TECHNOLOGY,
SUBCOMMITTEE ON TRANSPORTATION, AVIATION AND MATERIALS,
Washington, D.C.

The subcommittee met, pursuant to notice, at 1:45 p.m. in room 2318, Rayburn House Office Building, Hon. Robert G. Torricelli [chairman of the subcommittee] presiding.

Mr. TORRICELLI. The subcommittee will come to order, please.

This afternoon the subcommittee will consider a subject that impacts us as Members of Congress as much as anyone else: aircraft noise. Each of us who represents a region of the country that contains an airport, and that includes most Members of Congress, knows first-hand the depth of emotion that attends this issue, and rightfully so. Even the FAA estimates there are over 3 million people who are forced every day to live with unacceptable levels of noise. I might add that about 800,000 of these people live in the New York area, the highest number of any region of the United States.

The range of near-term remedies includes:

Phase-out of older, noisier aircraft, those complying with Stage 2 of the Federal Aircraft Noise Regulation, and replacing them with more modern aircraft;

Land use planning to limit development near airports to commercial uses and reclaiming some of the land now used for residences; and

Soundproofing of existing homes, schools, and hospitals.

All of these are important and all are occurring to some degree. But as has been said on other occasions, I believe we must ultimately solve this problem at the source, by finding technology to make aircraft much quieter.

Today we plan to examine the possibilities for achieving that goal. Specifically, we want to know what technology is on the horizon that will permit a further step in noise reduction—possibly, a Stage 4. We also expect to determine where Federal research funds must be applied to make that a reality. To do this, we have invited experts from both the Government and industry who are developing technology for the next generation of aircraft and who are planning the future of aviation systems.

But mostly, perhaps, today's hearing represents the fact that we are turning a corner. In developing a transportation policy last year, sections regarding elimination and reduction of noise were eliminated from the national policy. That is not the judgment of this Congress and certainly not the judgment of this committee. We are back in the business of noise reduction. Federal funding for aviation research that comes through this committee for authorization in the future will most certainly be centered on that subject.

[The prepared opening statements of Mr. Torricelli, and Mrs. Morella follow:]

HON. ROBERT G. TORRICELLI, CHAIRMAN

SUBCOMMITTEE ON TRANSPORTATION,

AVIATION AND MATERIALS

COMMITTEE ON SCIENCE, SPACE, AND TECHNOLOGY

SEPTEMBER 27, 1990

TECHNOLOGY FOR AIRCRAFT NOISE REDUCTION

TODAY THE SUBCOMMITTEE WILL CONSIDER A SUBJECT THAT IMPACTS US AS MEMBERS OF CONGRESS AS MUCH AS ANY OTHER -- AIRCRAFT NOISE. EACH OF US WHO REPRESENTS A REGION OF THE COUNTRY THAT CONTAINS AN AIRPORT -- AND THAT INCLUDES MOST OF US -- KNOWS FIRST HAND THE DEPTH OF EMOTION THAT ATTENDS THIS ISSUE.

AND RIGHTFULLY SO. EVEN THE FAA ESTIMATES THERE ARE OVER 3 MILLION PEOPLE WHO ARE FORCED TO LIVE EVERY DAY WITH UNACCEPTABLE LEVELS OF NOISE. I MIGHT ADD THAT ABOUT 800,000 OF THESE PEOPLE LIVE IN THE NEW YORK AREA, THE HIGHEST NUMBER OF ANY U.S. CITY.

THE RANGE OF NEAR TERM REMEDIES INCLUDES:

* PHASE OUT OF THE OLDER, NOISIER AIRCRAFT -- THOSE COMPLYING WITH STAGE 2 OF THE FEDERAL AIRCRAFT NOISE REGULATION, AND REPLACING THEM WITH STAGE 3 AIRCRAFT,

* LAND USE PLANNING TO LIMIT DEVELOPMENT NEAR THE AIRPORT TO COMMERCIAL USES AND RECLAIMING SOME LAND NOW USED FOR RESIDENCES, AND

PAGE 3

* SOUND PROOFING OF EXISTING HOMES, SCHOOLS AND HOSPITALS.

ALL OF THESE ARE IMPORTANT AND ALL ARE OCCURRING TO SOME DEGREE. BUT, AS I'VE SAID ON OTHER OCCASIONS, I BELIEVE WE MUST ULTIMATELY SOLVE THIS PROBLEM AT THE SOURCE, BY FINDING TECHNOLOGY TO MAKE AIRCRAFT MUCH QUIETER.

TODAY WE PLAN TO EXAMINE THE POSSIBILITIES FOR ACHIEVING THAT GOAL. SPECIFICALLY, WE WANT TO KNOW WHAT TECHNOLOGY IS ON THE HORIZON THAT WILL PERMIT A FURTHER STEP IN NOISE REDUCTION -- POSSIBLY A STAGE 4. WE ALSO EXPECT TO DETERMINE WHERE FEDERAL RESEARCH FUNDS MUST BE APPLIED TO MAKE THAT A REALITY.

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TO DO THIS WE HAVE INVITED EXPERTS FROM BOTH THE GOVERNMENT AND INDUSTRY WHO ARE DEVELOPING TECHNOLOGY FOR THE NEXT GENERATION OF AIRCRAFT AND WHO ARE PLANNING THE FUTURE AVIATION SYSTEM.

CONSTANCE A. MORELLA
8TH DISTRICT, MARYLAND

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TESTIMONY OF CONGRESSWOMAN CONSTANCE A. MORELLA
COMMITTEE ON SPACE, SCIENCE AND TECHNOLOGY
SUBCOMMITTEE ON TRANSPORTATION, AVIATION AND MATERIALS
TECHNOLOGY OF NOISE ABATEMENT

AS THE REPRESENTATIVE OF THE EIGHTH CONGRESSIONAL DISTRICT OF MARYLAND, WHICH HAS BEEN IMPACTED BY AIRPORT NOISE, I APPRECIATE THE OPPORTUNITY TO SUBMIT TESTIMONY ON THE NEED TO DEVELOP NOISE ABATEMENT TECHNOLOGY.

NOISE POLLUTION FROM AIRCRAFT AT NATIONAL AIRPORT IS A MAJOR CONCERN TO MY CONSTITUENTS. MEMBERS OF CONGRESS FROM NEIGHBORING DISTRICTS ALSO RALLY TO THE CRY FROM THEIR CONSTITUENTS WHO ARE ADVERSELY AFFECTED BY FLIGHTS OUT OF NATIONAL AIRPORT. THERE IS NO DOUBT THAT WE ARE UNIFIED IN OUR EFFORTS AND OUR DETERMINATION TO KEEP NOISE AT TOLERABLE LEVELS, AND THE WASHINGTON REGIONAL GOVERNMENT HAS MADE A "GOOD FAITH" AGREEMENT WITH THE CITIZENS OF THE SURROUNDING COMMUNITIES TO WORK TOWARD THE ALLEVIATION OF THE PROBLEM OF NOISY AIRCRAFT. I AM COMMITTED TO THAT AGREEMENT.

AIRCRAFT NOISE HAS BEEN AN "EVERGREEN" PROBLEM IN THE WASHINGTON AREA, AND WE ARE ALL AWARE OF THE NEGATIVE IMPACT ON THE RESIDENTS OF THE COMMUNITIES THAT SURROUND NATIONAL AIRPORT. CITIZENS HAVE ASKED THE AIRPORT AUTHORITY TO BAN OR LIMIT NIGHT TIME FLIGHTS TO ALLEVIATE THE STRESS OF SLEEPLESS NIGHTS. THEY HAVE ASKED AIRLINES TO USE STAGE 3, "QUIETER," AIRCRAFT TO REDUCE THE IMPACT OF NOISE ON THE QUALITY OF LIFE IN THE COMMUNITIES ALONG THE TAKE-OFF ROUTES AT NATIONAL AIRPORT. THE INTENTION HAS NOT BEEN TO ADDRESS ENVIRONMENTAL NEEDS AND IGNORE THE NEEDS OF THE AIRLINES AND THEIR EFFORTS TO IMPROVE AIR SAFETY AND EFFICIENCY. SOMEHOW, WE MUST MOVE TOWARD A GOAL AGREEABLE TO BOTH ENVIRONMENTAL AND ECONOMIC CONCERNS.

WE LOOK TO NEW, NOISE ABATEMENT TECHNOLOGY FOR THE ANSWER TO OUR NOISE PROBLEMS. WE NEED A GENERATION OF QUIETER AIRPLANES AND ADDITIONAL RESEARCH TO ACHIEVE THAT GOAL. WE ALSO NEED A MUTUALLY ACCEPTABLE AGREEMENT THAT WILL INCLUDE INPUT FROM THE AIRLINES, THE AIRPORT AUTHORITY, AND OUR CITIZENS.

THERE IS NO DOUBT THAT NOISE POLLUTION IS A GROWING PROBLEM IN AMERICA. NOISE CAUSES STRESS, MUCH THE SAME AS A TRAFFIC JAM OR THE THREAT OF CRIME. ACCORDING TO AUDIOLOGISTS, THE COSTS INCLUDE HEARING LOSS, IMPAIRED HEALTH AND ANTISOCIAL BEHAVIOR. UNLIKE LANDFILLS AND OIL SPILLS, NOISE IS AN INVISIBLE POLLUTANT. ALL THE SAME, THE HAZARDS ARE JUST AS REAL.

Mr. TORRICELLI. At this time I would like to yield to the distinguished ranking member, Tom Lewis of Florida, for opening comments.

Mr. LEWIS. Thank you, Mr. Chairman.

The Federal Aviation Administration estimates that approximately 3.2 million Americans live in areas where airport noise reaches levels of 65 decibels or more. This level and above will cause sleeplessness, irritability, and loss of appetite.

Airport noise is a major problem, threatening airport operations and expansion plans. As has been noted by the FAA, unless we solve the noise problem, we will not solve the capacity problem.

The FAA has established three categories, or stages, of aircraft noise. These include:

Stage 1 aircraft, which are the oldest and noisiest commercial jets. Their engines produce more than 108 decibels. Use of these aircraft has been illegal since 1985;

Stage 2 aircraft, which are the next generation of jets and the next noisiest. Their engines produce between 108 and 93 decibels; and

Stage 3 aircraft, which are the newest and quietest commercial aircraft. They are as much as 25 decibels quieter than Stage 1 aircraft, a reduction of approximately 85 percent.

As of January 1, 1989, approximately 2,300 U.S. airliners were Stage 2, while about 1,450 were Stage 3. Worldwide, about 3,550 aircraft, or 70 percent of all airliners, do not meet Stage 3 standards.

Airports are responsible for controlling aircraft noise and mitigating its effects in the airport vicinity. However, they have had difficulty balancing their interests with those of surrounding communities, airlines, and the FAA's responsibilities for safety, efficiency, and competition in air transportation.

Consequently, there is great interest in reducing airport noise at its source—namely, jet planes themselves. The ultimate goal is an all-Stage 3 or better fleet. While this is technically feasible, possibly by the mid-1990s, the cost would be high. Replacement of U.S. Stage 2 aircraft with Stage 3 aircraft would cost on the order of $100 billion. However, hush kits cost approximately $3 million per plane, but aircraft fitted with them barely meet the Stage 3 standard.

While re-engining can result in fuel savings of 5 to 15 percent—which is important today—and noise reductions 6 to 8 decibels greater than with hush kits, the cost can be up to $15 million per plane. This may exceed the present value of the aircraft. What, then, is the best approach financially to achieving an all-Stage 3 fleet?

NASA and the FAA have research and development programs in noise reduction and control that they will testify about during this hearing. What are the results of these programs to date? When can we expect to achieve an all-Stage 3 fleet or better? Is this a reasonable time frame from an environmental standpoint?

These are questions that I hope will be answered during today's hearing, and I look forward to the testimony from our witnesses.

Mr. Chairman, thank you.

[The prepared opening statement of Mr. Lewis follows:]

HON. TOM LEWIS (R-FL)

OPENING STATEMENT

TAM HEARING ON TECHNOLOGY FOR AIRCRAFT

NOISE REDUCTION

SEPTEMBER 27, 1990

THANK YOU, MR. CHAIRMAN.

THE FEDERAL AVIATION ADMINISTRATION ESTIMATES THAT APPROXIMATELY 3.2 MILLION AMERICANS LIVE IN AREAS WHERE AIRPORT NOISE REACHES LEVELS OF 65 DECIBELS OR MORE. THIS LEVEL, AND ABOVE, WILL CAUSE SLEEPLESSNESS, IRRITABILITY AND LOSS OF APPETITE.

AIRPORT NOISE IS A MAJOR PROBLEM, THREATENING AIRPORT OPERATIONS AND EXPANSION PLANS. AS HAS BEEN NOTED BY THE FAA, "UNLESS WE SOLVE THE NOISE PROBLEM, WE WILL NOT SOLVE THE CAPACITY PROBLEM."

THE FAA HAS ESTABLISHED THREE CATEGORIES OR STAGES OF AIRCRAFT NOISE. THESE INCLUDE:

- STAGE 1 AIRCRAFT, WHICH ARE THE OLDEST, AND NOISIEST COMMERCIAL JETS. THEIR ENGINES PRODUCE MORE THAN 108 DECIBELS. USE OF THESE AIRCRAFT HAS BEEN ILLEGAL SINCE 1985.

- STAGE 2 AIRCRAFT, WHICH ARE THE NEXT GENERATION OF JETS AND NEXT NOISIEST. THEIR ENGINES PRODUCE BETWEEN 108 AND 93 DECIBELS.

- STAGE 3 AIRCRAFT, WHICH ARE THE NEWEST AND QUIETEST COMMERCIAL AIRCRAFT. THEY ARE AS MUCH AS 25 DECIBELS QUIETER THAN STAGE 1 AIRCRAFT, A REDUCTION OF NEARLY 85 PERCENT.

AS OF JANUARY 1, 1989, APPROXIMATELY 2,300 U.S. AIRLINERS WERE STAGE 2 WHILE ABOUT 1,450 WERE STAGE 3. WORLDWIDE, ABOUT 3,550 AIRCRAFT, OR 70 PERCENT OF ALL AIRLINERS, DO NOT MEET STAGE 3 STANDARDS.

AIRPORTS ARE RESPONSIBLE FOR CONTROLLING AIRCRAFT NOISE AND MITIGATING ITS EFFECTS IN THE AIRPORT VICINITY. HOWEVER, THEY HAVE HAD DIFFICULTY BALANCING THEIR INTERESTS WITH THOSE OF SURROUNDING COMMUNITIES, AIRLINES, AND THE FAA'S RESPONSIBILITIES FOR SAFETY, EFFICIENCY, AND COMPETITION IN AIR TRANSPORTATION.

CONSEQUENTLY, THERE IS GREAT INTEREST IN REDUCING AIRPORT NOISE AT ITS SOURCE, NAMELY, JET PLANES THEMSELVES. THE ULTIMATE GOAL IS AN ALL-STAGE 3 OR BETTER FLEET. WHILE THIS IS TECHNICALLY FEASIBLE, POSSIBLY BY THE MID-1990S, THE COST WOULD BE HIGH.

REPLACEMENT OF U.S. STAGE 2 AIRCRAFT WITH STAGE 3 AIRCRAFT WOULD COST ON THE ORDER OF $100 BILLION. HOWEVER, HUSH KITS COST APPROXIMATELY $3 MILLION PER PLANE. BUT, AIRCRAFT FITTED WITH THEM BARELY MEET THE STAGE 3 STANDARD.

WHILE RE-ENGINING CAN RESULT IN FUEL SAVINGS OF 5 TO 15 PERCENT AND NOISE REDUCTIONS 6 TO 8 DECIBELS GREATER THAN WITH HUSH KITS THE COST CAN BE UP TO $15 MILLION PER PLANE. THIS MAY EXCEED THE PRESENT VALUE OF THE AIRCRAFT. WHAT, THEN, IS THE BEST APPROACH FINANCIALLY TO ACHIEVING AN ALL STAGE 3 FLEET?

NASA AND THE FAA HAVE RESEARCH AND DEVELOPMENT PROGRAMS IN NOISE REDUCTION AND CONTROL THAT THEY WILL TESTIFY ABOUT DURING THIS HEARING.

WHAT ARE THE RESULTS OF THESE PROGRAMS TO DATE?

WHEN CAN WE EXPECT TO ACHIEVE AN ALL STAGE 3 FLEET OR BETTER?

IS THIS A REASONABLE TIMEFRAME FROM AN ENVIRONMENTAL STANDPOINT?

THESE ARE QUESTIONS THAT I HOPE WILL BE ANSWERED DURING TODAY'S HEARING. I LOOK FORWARD TO THE TESTIMONY FROM THE WITNESSES.

THANK YOU, MR. CHAIRMAN.

Mr. TORRICELLI. Thank you, Mr. Lewis.

Mr. McMillen, would you like to make an opening statement?

Mr. MCMILLEN. Thank you, Mr. Chairman. I want to commend you, as well, for holding this very important hearing on research and development in aircraft noise abatement. It is obviously of great interest to me because I represent parts of areas around National Airport and BWI, Baltimore-Washington Airport as well.

I am pleased that Senator Lautenberg is here. I want to commend the Senator and Senator Bradley for their efforts on phasing out Stage 2 aircraft around New York and New Jersey airports.

Let me just say that when I was with the Knicks with Senator Bradley, we used to fly in and out of those airports, quite often on very noisy airplanes. So I am pleased that your efforts will lead to a quieter environment. I think it is a precursor to the kind of national strategy that I wish this Administration would begin to address with regard to Stage 2 aircraft.

There are two levels on which the problem of noise abatement must be addressed. The first level focuses on the implementation of technologies that are already developed, such as Stage 3 aircraft, soundproofing, and flight path changes. The thrust of these activities is to achieve immediate results in abating aircraft noise. However, there is also a second level that is equally important, if not more important than the first. This level includes research and development of new technologies. Let's face it: the only hope for some ultimate solution to the aircraft noise problem lies in developing better technologies than we currently possess.

The population is growing, meaning that there are fewer less densely populated areas to direct aircraft over. In addition, there is a real economic benefit of increased air travel. Therefore, it only makes sense that while we are enacting short-term fixes for the problem, we must also continue seeking long-term solutions. Those kinds of solutions are what we are here to discuss today, and I am anxious to hear what is in the works. I am also very interested in research that the FAA is conducting in the area of noise abatement as well.

Currently, noise measurement is determined through an averaging system, or "Day-Night Sound Level," DNL-based system that was developed in response to the Aviation Safety and Noise Abatement Act of 1979. Because demographics have changed significantly in this country since then, Mr. Chairman, you and I have repeatedly urged the FAA to look into whether this kind of measurement needs to be updated or supplemented, specifically dealing with single-event noise. The last time I spoke to Mr. McDaniel of the FAA, who I see is here today and will testify, I asked that further investigation into noise measurement be conducted in some kind of formalized manner.

Mr. Chairman, I am pleased that our efforts on this issue have paid off. It is now a specific category of research within the FAA. I know that research has been going on in this area. I am interested to know what, if any, results have come out of these studies, and I will save my noise-specific questions to later.

I look forward to hearing the testimony today. I am pleased, again, that you're having this hearing. I am pleased that we have a representative from the State of Maryland appearing before the

subcommittee as a participant in this community panel. Mr. Tom Dixon will testify today as the President of the BWI Neighbors Committee, an organization that works with State and local officials, as well as airport personnel, to address the problem of aircraft noise.

In closing, Mr. Chairman, I would ask that I be able to submit for the record a statement given to me by the Greater Severna Park Council Airport Committee, an umbrella organization for many Maryland communities involved in aircraft noise abatement.

Mr. TORRICELLI. Without objection, it will be entered in the record at this point.

Mr. MCMILLEN. They were unable to have a representative here today, so I appreciate the inclusion of their testimony. Thank you.

Mr. TORRICELLI. Thank you, Mr. McMillen.

[The letter from Greater Severna Park Council Airport Committee follows:]

September 25, 1990

To: Congressman Tom McMillen
From: Regina Dwyer, Greater Severna Park Council Airport Committee

Engrained operating procedures and techniques for managing air space have not kept technological pace with evolving aircraft capabilities.

In order to obtain a fresh and unbaised evaluation of capabilities of current technology with respect to noise abatement and mitigation, a study must be funded aimed at reducing the negative environmental effecta of noise and air polution on communities both inside and outside the officially designated noise zone using BWI as the pilot research facility. This study should be comprehensive and be performed by an independent, private consultant. This consultant should be tasked with addressing specific noise mitigation and abatement and safety measures such as;

- o increased glide slopes
- o higher initial approach altitudes
- o alternative visual approach routes
- o development of computer models which show alterations to different arrival/departure patterns and assumptions and the impact on the noise level

as well as additional recommendations concerning noise mitigation and abatement.

We particularly want to stress the importance of the independent nature of this consultant. We want at all costs to avoid a conflict of interest by not involving either the FAA or the local airport authorities.

Prepared for TAM hearing on September 27, 1990

Mr. TORRICELLI. To lead our list of witnesses today is Senator Frank Lautenberg of the great—in fact, unequalled — State of New Jersey. Senator Lautenberg is Chairman of the Appropriations Subcommittee on Transportation, has been a leading national voice on transportation policy and a particularly effective voice on the questions of noise difficulties in our State and around the country.

Thank you for joining us today, and the committee welcomes your testimony.

STATEMENT OF HON. FRANK R. LAUTENBERG, A UNITED STATES SENATOR FROM THE STATE OF NEW JERSEY

Senator LAUTENBERG. Thank you very much, Mr. Chairman. I thank you for your interest and leadership in transportation matters. I know of your constant interest in improving transportation systems, but also making certain that these systems are safe to travel on, as well as compatible with normal living in our daily lives. You and I have the good fortune to live in north Jersey, but accompanying that is this incredible noise hazard that we live with constantly. It is distressing in all manners and forms.

I was interested to note that the gentleman from Florida, Mr. Lewis, in his comments pointed out a condition that I didn't realize existed for those who live in noise-crowded areas, and that was loss of appetite. I haven't experienced that, although I have experienced all of the other nuisances accompanying excessive noise.

And for our distinguished friend from the State of Maryland, Tom, I think the Knicks could use you back there. We would try to make any manner of transportation available to get you to lift the spirits and skills of the team.

Mr. Chairman, thanks very much for the opportunity to appear before you this afternoon.

The subject of aircraft noise is a critical one that has to be addressed. Hopefully, these hearings can serve as a springboard for action so that residents of our States and in communities all across this country can get relief from the burden of aircraft noise.

Aviation is a vital industry to our Nation, and it is particularly important to a State like ours, which is a transportation center for the entire East Coast—perhaps, in many ways, for the whole world because of the New York airports and their prominence.

Aviation's development has meant thousands of jobs and billions of dollars for our State's economy, but it is not unique. There are many other important industries to our State, as well, and they are vital. But that doesn't mean that we stand by and let them pollute our environment, nor should we let new noise pollution go unchecked.

Today, Senator Bradley and I are introducing a bill to phase out noise Stage 2 aircraft by the end of the decade. We are doing this because we believe that it may be the single most available effective means of reducing noise over the long term. Newer Stage 3 planes can be half as noisy as the present Stage 2 airplanes, but at airports like Newark International the older, noisier planes make up more than half the fleet that uses that airport, and that's unacceptable. Technology can and must play a part in reducing noise

pollution. We require scrubbers on smokestacks; we should require quieter engines on aircraft.

It makes sense from a number of perspectives. It will, according to the information we get from FAA, reduce the number of people impacted by noise in this country by two- thirds, and it will reduce fuel consumption by an average of 30 percent. And in these days, when our young men and women are in the deserts of Saudi Arabia to protect oil resources, that alone is a goal worth attaining.

Mr. Chairman, this is an important part of any effort to reduce the impact of aircraft noise on our constituents, and I hope that your subcommittee will continue to take a very close look at the proposals abounding. There are other steps. Some of them are in a five-point plan that Senator Bradley and I have proposed. Some of the initiatives have already been acted upon; others are under way. That plan calls for, in addition to the Stage 3 objective:

The expanded use of restricted military airspace to get traffic away from populated areas;

The adoption of an aggressive noise control policy, including a near-term phaseout of the Stage 2 aircraft at the airports under the control of the Port Authority of New York and New Jersey that manages the airports in our region;

Third, the development of a national aviation noise policy through a series of public hearings, and with strong consideration to environmental concerns;

Fourthly, the requirements for FAA to prepare environmental impact statements for major route changes that would result in significant increases in existing noise levels; and

Fifth, a mandatory national ban on Stage 2 operations by the end of the decade, as I've already discussed.

Following through on the five steps I've outlined could result in real and lasting relief for those affected by aircraft noise.

Mr. Chairman, this is a difficult issue because, once again, to restate, we need the facility that aviation presents us with in order for our people to travel, for business to go on, but we can't abide the noise pollution that presently accompanies it. So you have a complicated problem in front of you, Mr. Chairman, but I'm sure that with your leadership and your skills, that you will be able to fashion some legislation that well help us get by with less noise and just as efficient and accessible aviation service. I thank you very much for having this hearing, and I look forward to working with you and your subcommittee on this and other important issues.

Mr. TORRICELLI. Thank you, Senator, very much, not only for your statement but for the fact that you have helped bring this issue to so many of our other colleagues.

In the legislation you are introducing on Stage 2 aircraft, what numbers of aircraft likely would have to be phased out of the system, approximately, to come into compliance, over what period of time?

Senator LAUTENBERG. I don't have a specific number, but as it applies to Newark, we are less than half of those airplanes, presently, now with Stage 3 configurations. We have tried to look at this in a manner such that the transition can be made, that the costs are in keeping with the need for service and the ability of the

airlines to afford it; but more importantly than anything else is the health and well-being of our constituents. So what we think we've done is present a program that is viable, that is achievable, and that at the same time, as I indicated in my formal comments, that will be able to save a significant amount of fuel, which by itself is a major objective.

Mr. TORRICELLI. There is a belief by many of us that at least incremental progress can be made based on engine designs, materials, and airframe designs, and our hope that with the combination of FAA, the National Science Foundation, and NASA, we can have the Government return to that business of seeking those technical answers.

Do you generally share that that is a first and appropriate effort for Government now, and that there may be technological answers?

Senator LAUTENBERG. Absolutely. And when we see the sums invested in reducing exposure to military aircraft, appropriately, the kinds of materials we're looking at that could have significance in terms of wing design, fuselage design, we think that that, too, is an appropriate measure, and why not extend that into the field of aviation generally? We think that that's a very desireable way to be making long- term investments by the Government, and I encourage it.

Mr. TORRICELLI. What I expect to hear in some of our testimony today is that the potential, actually, for the airframe designs may be as great as changes of engine designs, as yet untested, to yield real and dramatic changes in noise levels.

This committee, in our authorization bill, is requiring the FAA as well to develop computer models in the future before doing changes of routes so that this is not done by chance or guess, but would be actually based on altitudes, routes, living conditions, climate—by computer simulation, the ability to forecast what the public reaction will be and the noise impacts. I wanted to share that with you because we think it, as well, can be an important contribution to this.

Finally, for my part, the committee has given some considerable attention to tiltrotor technology. Our hope is, in working with the manufacturers, is that wherever the military program may go with the V-22, that we can convince operators and manufacturers and the FAA by developing now a potential infrastructure for tiltrotor, that this is a possible answer as well because it would so dramatically reduce the kinds of short-term takeoffs and landings that are plaguing our own area. I think the number in the New York metropolitan area is that 60 percent of all flights are going under 300 miles. Those are likely candidates for tiltrotor, which can operate with a fraction of the amount of noise. There are many of us on this committee who believe in that technology very strongly, and I hope, given your important position on the Senate Appropriations Committee as well, that you will follow these developments and give your transportation leadership to the program.

Senator LAUTENBERG. I am with you on that all the way, Mr. Chairman. There are all kinds of reasons for thoroughly researching that technology, not the least of which is evident now in our needs in the Middle East.

I also would invite you—and I know that you've had an interest—to continue to examine opportunities for improvement in rail service, because one of the things that I've been pursuing is the speeding-up of rail interconnects between the cities on the East Coast. Can you imagine, with the number of flights that we have today just between Newark and New York City and Washington, and from New York City and Newark to Boston, if we were able to get—not much improvement, but 20 or 30 percent improvement, on rail service there, and get that from 2 hours and 49 minutes down to 2 hours and 20 minutes? We would discourage the use of aircraft for that kind of a trip. And frankly, if we could eliminate some of that travel, we would free up the skies for all kinds of service, and also relieve our constituents and our friends of the problem of noise distress that they suffer with aviation.

So I am hoping—and I was able, in the transportation bill for this year, to get $125 million for the electrification of the route from New Haven to Boston—to take roughly two hours off the trip from New York to Boston. If we continue to pursue that while we continue to ask for improvements in aircraft, I think we can present a more efficient, a more pleasant environment for our people.

Mr. TORRICELLI. I actually didn't know that, but as somebody who used to ride that route, I'm glad to hear it. That was not a viable transportation system with the amount of time it was taking to get from New York to Boston.

Of course, we're speaking to the converted on this subject of train transportation—

Senator LAUTENBERG. Right.

Mr. TORRICELLI.—but you made the point perfectly. The real answer, the ultimate answer to our problems of aircraft noise, is that we are flying a great number of aircraft that shouldn't be flown at all. As a matter of environmental policy, energy policy, transportation policy, and quality of life, we cannot sustain a national system where people need to take airplanes to travel 100 or 200 miles. It is inappropriate and it makes no sense.

Mr. Lewis?

Mr. LEWIS. Thank you, Mr. Chairman.

And thank you, Senator, for testifying before our subcommittee. I think your comments are well taken. I am most interested in your legislation. I want to commend you for phasing out of Stage 1 aircraft by the end of this decade. I think that that is most important.

I guess—and do you include in your legislation any way that we are going to restrict foreign airliners that would be Stage 1 coming in? How would we handle that in order to meet the requirements of your legislation?

Senator LAUTENBERG. Well, I think the rules that the airports may impose, I think, would apply to any carriers, whether foreign or domestic, or that FAA could persuade them of. I think they would apply equally. We haven't been able to apply our nonsmoking ban to international travel, but that's yet another thing. But I think that the same rules will apply to foreign as well as domestic carriers.

Mr. LEWIS. Okay.

Do you feel that there should be more teeth for the FAA as far as licensing local airports in respect to restricting zoning around airports so that they follow the flight patterns to disallow the development in such a way that after five years, then you have a problem with noise because the inhabitants are living right in the path of takeoff and landing runways?

Senator LAUTENBERG. That's a very interesting hot potato, a very interesting question, Mr. Lewis. The question is not so much whether we remove zoning jurisdiction from communities and States, but rather, I think a very good point is to make it amply known that if development takes place within a given area around an airport, they're going to be subject to the discomfort and the problems of noise. Then it's kind of caveat emptor. But I don't think that we can do the zoning job directly from here, but it certainly demands attention as you know, coming from the State you do—and we, certainly, all the Members of Congress gathered here—having to do with our coastal zone development, the same kind of thing. Once you invade those barrier islands, you pay a terrific price for that. We're trying to get some legislation in place that would curb some of that.

But it's a worthwhile thing to consider, and I hope that your committee will review some of those possibilities as you consider legislation.

Mr. LEWIS. Well, thank you.

I just wanted to question—I guess, more or less asking your opinion—how far should FAA be involved in research and development in the interest of reducing noise as compared to the private sector itself?

Senator LAUTENBERG. I think the FAA should take the major leadership role. I think they ought to make it an inducement for the private sector to participate by putting the kinds of conditions out there that say, "Listen, if you don't, you're going to be left out." But I think the FAA has a role and I think that the FAA has learned our general view within the Congress, that we're not satisfied to have altitudes above 3,000 be exempt from Environmental Impact Statements. We're asking for more than that. We're asking them to get involved, to recognize that their responsibility goes far beyond the promotion of aviation—and in fairness to the FAA, with whom I work very closely, they are understanding that more and more.

But we want them to have muscle. We want them to have teeth, and we want them to play a role that is responsive to the communities in which these facilities are located.

Mr. LEWIS. Finally, do you have anything in your legislation—we've kicked it around this committee a few times during our noise hearings—as to reducing the language of noise application and engineering to an academic level where the average person could understand what is being written and talked about?

Senator LAUTENBERG. That's an assignment beyond me, to get language the average person understands.

[Laughter.]

Senator LAUTENBERG. That, Mr. Lewis, would require quite an education right here, but—

Mr. TORRICELLI. We have, by the way, in our authorizing legislation, asked the FAA to do that, to come up with it, figuring that if we can't understand it, neither can the public—

Senator LAUTENBERG. Great idea.

Mr. TORRICELLI.—asked them to come up with a new level of noise monitoring that we can understand.

Senator LAUTENBERG. Great idea.

Mr. LEWIS. A couple of us are engineers around here and we have trouble understanding it.

So thank you, Senator, for your testimony. We appreciate it.

Mr. TORRICELLI. Mr. McMillen?

Mr. MCMILLEN. Thank you.

I just have two questions. One has to do with the question of incentivizing airlines to adopt Stage 3 aircraft. Obviously, with the dire straits that a lot of airlines are finding themselves in with fuel increases and the like, I wonder whether these kinds of changes will be injurious, and in some cases fatal, to parts of the industry.

Because airport noise is a national problem, it's endemic across the country, shouldn't we be looking at some way, like ITC credits or something, some sort of tax vehicle, to incentivize airlines to do the kinds of things that you're trying to achieve, Senator?

Senator LAUTENBERG. I'd probably have to think more about that, Mr. McMillen. But I would say that that strikes a responsive chord with me, but that's because with my business background I have always felt that incentives, closely guarded from being traded like commodities in the marketplace, to invest in new capital goods, new capital equipment, new technology, always had a positive result. Unfortunately, before 1986 what happened is these were being abused and turned into pure tax dodges.

But I share that view—

Mr. MCMILLEN. Let me add another thought. With the possibility of passenger taxes and the like and the Airport Trust Fund being used in greater amounts in the future, my thought—and some of the research that we've been looking at — is allowing whatever revenue losses come off from the ITC to come out of the Airport Trust Fund. I don't know whether that's a possibility, but clearly the connection is there. Those people who are flying airplanes should in fact be encouraging the use of quieter aircraft.

Senator LAUTENBERG. This, again, is getting further from my jurisdiction, but we're asking the passenger to pay extra fees for security and extra fees for the Airport Trust Fund. I think we ought to figure out a way to deal with the noise problem because that's one that affects almost the whole of the country, certainly in the more populated areas. So we ought to try to incentivize and encourage.

One of the things that's going to happen—and this could be painful for some of the airlines that are marginally capitalized—is restricting flights to other than Stage 3 aircraft. It's going to impose a heck of a burden on these people.

Mr. MCMILLEN. That's why I prefer the marketplace, and particularly using the Trust Fund to absorb some of these costs.

The second question I have has to do with this. One of the problems that I find is that communities around airports, they feel like they are dealing with a bureaucratic maze. They can never really

determine whether they have confidence that the airports are really utilizing the most noise abatement methods that they could possibly employ, and there's no one they can go to for an appeal as an adjudicator of this.

My thought on this is that maybe we need a "noise auditor," someone independent in the FAA, so that if a community thinks that the airport management is not managing the airport in the best interests of safety and all those things, but noise abatement as well, and that their plans are not sufficient, they can go to an "inspector general of noise" in the FAA and find out independently whether those plans are optimum to minimize noise.

Senator LAUTENBERG. I think we touched on that before by having language and comprehensible standards that we can abide, and maybe we can overcome some of the public disillusionment with the way the Government works at times. It's a real problem, and I think the FAA—here today, and hearing from all of us—understands very well that we want them engaged, and whatever we can do, I think, legislatively to put a pebble or a large stone in that shoe, is worth doing. Very often the communities are powerless because of an airport authority's, as you know, sometimes insensitivity to the conditions of "get them in, get them out, make them safe, and forget about everything else."

When you think about what has to be spent on roadways around airports—I mean, Kennedy needs something like $100 million just for automobile approaches to the airport. Well, we may have to figure other ways of also using funds to reduce the noise problem.

Coupled with this, Mr. Chairman, is the incredible cost. As we look at what happened with deregulation, today's fare, as I understand, from New York to Washington on one of the shuttles or flights, is $129. It's barely over 200 miles.

I was the first speaker when People Express flew its—I was the speaker on their first flight; I was the Commissioner of the Port Authority of New York and New Jersey at the time, and it was a $19 flight about 10 years ago, but we knew $19 was a seductive rate that wasn't going to survive. But we've come a long way, baby, as they say, from $19 to $129, if that's the general rate—I know someone who paid that rate. So we're losing out in all kinds of ways. There's more discomfort. There's certainly more discomfort in the process of aviation travel than there used to be, a lot less service, and fuel costs at the time of deregulation were very, very high, I think perhaps as high as or higher than they currently are. So we have to find ways—

Mr. MCMILLEN. Well, Senator, I would applaud those statements and just add that if you fly from Baltimore to New York you're going to pay, I think, one-way about $189. So that's probably 30 or 40 miles shorter.

Mr. TORRICELLI. You should stop worrying about noise and take Amtrak.

[Laughter.]

Mr. MCMILLEN. But I appreciate your comments. Thank you.

Mr. TORRICELLI. Mr. Rohrabacher?

Mr. ROHRABACHER. First of all I would like to congratulate you, Mr. Chairman, on holding this hearing. I'm not going to be able to

stay the whole time, but I think it is an important issue. I have a few general questions.

First of all, let me just mention that I always feel that I have to step forward for the free enterprise position here. On deregulation, coming from Los Angeles, I can remember flying from Los Angeles to New York, and a round-trip ticket was around $300. That was about 15 or 20 years ago. That's the same price that it is today if you know a week or 10 days in advance. It seems to me that deregulation, at least for people in my area, has been a major boon. I just would really think that some people have benefitted from deregulation.

Senator LAUTENBERG. Less I be totally misunderstood, I didn't say that deregulation was a fetter, but I point out to you where I think there have been some failures in the system. And I would hope that you would get some comfort out of the fact that sometimes a flight from New York to here takes as long as it does from New York to California.

Mr. ROHRABACHER. Well, as the Chairman says, the market in some ways tends to give incentives to people to use the other mode of transportation when it perhaps is more economical to send people by train to New York rather than by air from this location.

About the problem of noise at airports, do you believe it's a growing problem or do you believe that we just have heightened sensitivity to the noise factor? I mean, a lot of planes are actually quieter today than what they used to be. But is it simply because people today are more sensitive to their rights in terms of their rights being violated by too much noise from an airport?

Senator LAUTENBERG. I think there's an awareness today that noise as a factor in our environment is an ever more oppressive condition. We build highways today with noise barriers. We didn't do that in years past, but it's so disturbing to the quality of life because, I think, of population growth, density, the volume of movements—even though they may have tapered down in aviation, the fact is that there are a lot more than there used to be. So I think there are a number of factors that now say that we've had enough.

But, listen, people are much more conscious of waste disposal today than they were not too many years ago, water pollution, all of those things. They have suddenly said, "Hey, listen, life at all costs is worth living, but life with a decent quality about it is what we think we're entitled to in this great democracy of ours."

Mr. ROHRABACHER. So the heightened awareness may actually be working to make things better, but it still is based on a heightened awareness, I think, rather than—

Senator LAUTENBERG. Well, just kind of speculating, I tnink there is a lot more noise around. It's not just that I hear it more. In our area, I think there has been a concentration of approaches, takeoffs, and landings. If you're underneath that "lane," let me call it, boy, it's murderous. The house shakes, the dishes rattle, the dog growls, and the whole thing is very unpleasant.

Mr. ROHRABACHER. Senator, this doesn't excuse it, obviously, because I do agree with you that a heightened awareness for everything environmental can make things better. But I know that in many areas of the country we have people who have actually

moved in around airports and then, after they have voluntarily moved in and known exactly where they were going, now they start complaining that there's noise, realizing that they knew that before they bought their house. This isn't a case where the airports have moved into urban areas, is it? Isn't it a place where the urban areas have grown up around the airports?

Senator LAUTENBERG. I think that's fair to say. Costs are driving people to seek housing or commercial space in areas that heretofore would not have been so freely used. So they are crowding in. People live next to chemical companies, a la Bhopal, India, and pay a terrible price, but they are driven there by other factors. We are a very crowded place and it is harder and harder to find living room, and therefore people do those things—in your State, certainly, and in Florida, and in our State. The coastal States are attracting people at an ever-accelerating rate, and they just crowd in wherever they can. I think Mr. Lewis made a very good point about how you keep some kind of a separation between living and commerce. Well, you can't do it once everything is in place; but as you contemplate the future, we ought to be thinking about this.

Mr. ROHRABACHER. One last note. Even as I say, these observations do not discount the fact that we need to work and make it better. Even if people didn't move in after the noise was already there, it doesn't mean that it actually excuses the fact that we should just ignore it. I agree with the Chairman when he states in his press release—I noticed that technology is going to go a long way in solving this, and I appreciate his support and your support for the V-22 and other types of programs that over a period of time, I believe, will help the problem and diminish this problem of noise in our urban areas coming from air traffic.

Thank you very much, Senator.

Senator LAUTENBERG. Thank you.

Mr. TORRICELLI. Thank you, Mr. Rohrabacher.

Thank you, Senator Lautenberg, for your leadership on this issue and for appearing before the committee today. I look forward to all of us working to reduce the noise problem in each of our areas and at all of our airports, with the possible exception of Mr. Lewis', who represents West Palm Beach, where I have personally vowed to contribute to the problem as much as possible.

[Laughter.]

Mr. TORRICELLI. With that exception, I know this is a problem for all of us, and your help on it is much appreciated. Thank you, Senator.

Senator LAUTENBERG. Thank you very much.

Mr. TORRICELLI. Will our first panel of witnesses come forward, please? Dr. Rosen, Deputy Administrator, Aeronautics, Exploration and Technology, NASA; Dale McDaniel, Deputy Director, Policy and International Affairs, FAA; Kenneth Mead, Director, Transportation Issues, Resources, Community, and Economic Development Division, GAO.

Gentlemen, welcome. Thank you for being with us today and for offering your testimony. It will, of course, be entered in the record in its entirety. We would welcome you, in as brief a fashion as you think appropriate but necessary, to present a summary of those

comments for members of the committee, and then hopefully be available for our questioning.

I would also like to ask unanimous consent that Mrs. Morella's statement be entered into the record at that point where members were making their opening comments. Without objection, it will be so entered.

Dr. Rosen, if you would proceed, please.

STATEMENT OF DR. ROBERT ROSEN, DEPUTY ASSOCIATE ADMINISTRATOR, AERONAUTICS, EXPLORATION AND TECHNOLOGY, NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

Dr. ROSEN. Thank you, Mr. Chairman. I have a statement for the record which I have already submitted. What I would like to do here is summarize that briefly with an oral statement.

Mr. TORRICELLI. Please.

Dr. ROSEN. Thank you for this opportunity to discuss NASA's program in aircraft noise research. We take our charter responsibility to keep the U.S. preeminent in aeronautical technology seriously, and our work in noise reduction is a good example of that. We have actively participated in technology development to reduce the noise from jet engines since their introduction on subsonic transport more than 30 years ago.

Modern jet engines are eight times quieter than the first generation transport of the 1960s. This dramatic progress has, from the outset, been achieved through close cooperation among NASA, the FAA, the engine and airframe manufacturers, and the research community.

NASA provides research and technology talent, critical national facilities, and mechanisms for technology transfer. We recognize that continued growth in the air transportation system will create additional pressure for even quieter aircraft and more stringent noise rules.

To provide the required technology for the future, our current aircraft noise research program includes activities for advanced subsonic transport, for future high-speed transport, and for rotorcraft. NASA researchers believe that reductions of about one-half of currently perceived noise levels for subsonic transports may be possible in the future. New engine designs could provide opportunities to reduce source noise through bypass ratio improvements, fan design, and nacelle treatment. A substantial portion of our advanced turboprop program is being redirected to focus on these topics for noise reduction for ultra-high-bypass ducted systems. These engines, because of their lower jet velocities, will be inherently quieter than present-day engines. Since they could have diameters 50 to 80 percent larger than current engines, a high degree of propulsion airframe integration will be required for optimal performance at minimum noise levels.

We will continue to utilize our unique national facilities and highly sophisticated computational capabilities to minimize the noise generated by flow field interactions. In addition, advanced efficient high-lift systems are a high priority for the next generation of transport. In addition to the economic and performance payoffs, they provide the potential for reducing community noise through

such factors as reduced power requirements and steeper climb-out profiles.

Because of the importance of the noise problem, we are looking into the development of a plan for an accelerated noise reduction program for subsonic aircraft. At such time as appropriate, we will consider an augmented effort in the budget cycle.

Now let me turn to the high-speed civil transport. NASA and industry studies forecasts a potentially large future market for an economically and environmentally acceptable vehicle. An environmentally acceptable aircraft would have no harmful effects on the atmosphere and would meet appropriate standards for airport noise and sonic boom levels.

In fiscal year 1990, NASA initiated a program to overcome the environmental barrier issues of the high-speed civil transport. Initial results provide significant promise that aggressive noise goals can be met.

In rotorcraft noise research, NASA has cooperative programs with the industry, the FAA, and the Army. Technologies currently in development include advanced quiet rotor tips, vortex suppression, and active rotor control.

The tiltrotor vehicle concept, first demonstrated by the NASA/Army/Bell XV-15, which you mentioned earlier, Mr. Chairman, offers opportunities to utilize its unique characteristics for noise abatement flight procedures. We are investigating a number of promising ideas in simulations and flight tests that might provide the answer to the search for a "friendly neighbor" rotorcraft.

In summary, NASA is developing the fundamental knowledge base in emerging technology areas for various classes of aircraft which offer the potential for major improvements in reduced aircraft noise. With the projected growth of the air transportation system and of populations near the airports, continuing noise research is required to assure that future generations of aircraft will be environmentally compatible with the airport community.

Thank you, Mr. Chairman. That concludes my remarks. Obviously, I will be glad to answer any questions you might have.

[The prepared statement of Dr. Rosen follows:]

NASA
National Aeronautics and
Space Administration

Hold for Release Until
Presented by Witness

September 27, 1990

Subcommittee on Transportation, Aviation and Materials

Committee on Science, Space and Technology

House of Representatives

Statement by:

Robert Rosen
Deputy Associate
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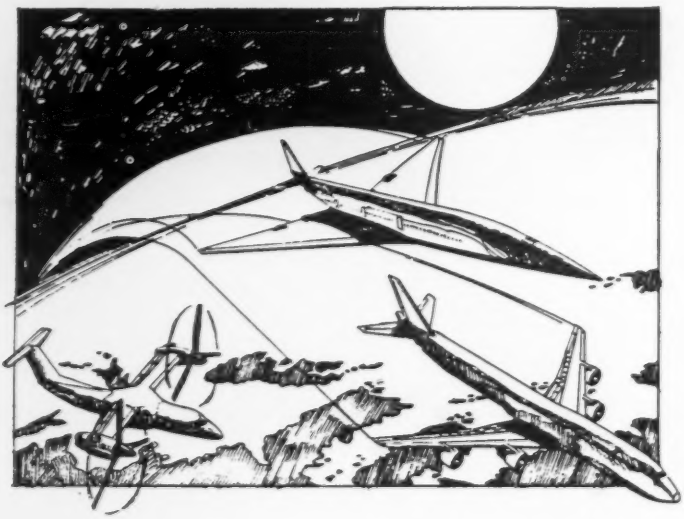
for Aeronautics,
Exploration and
Technology



101st Congress

STATEMENT

of

ROBERT ROSEN
Deputy Associate Administrator for
Aeronautics, Exploration and Technology

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

before the

Subcommittee on Transportation, Aviation and Materials
Committee on Science, Space and Technology

United States House of Representatives

Mr. Chairman and Members of the Subcommittee:

Thank you for this opportunity to discuss NASA's program in aircraft noise research, the state of noise reduction technology and its potential application to several classes of current and future aircraft. NASA has actively participated in the understanding, prediction, and technology development to reduce the noise from jet engines since their introduction on subsonic commercial transports more than 30 years ago. As engines have changed with incorporation of new technologies for improved performance and efficiency, applications of noise reduction technology have kept pace. In terms of the standard measurements of aircraft noise as perceived by observers on the ground, modern high-bypass ratio jet engines are eight times quieter than the first generation transport engines of the 1960's. In the early 1970's NASA developed a number of promising technologies for reducing engine fan noise. The potential for applications to future designs prompted NASA to contract with Pratt and Whitney to modify their JT8D engine, replacing its two-stage fan with a larger diameter single stage fan and applying acoustic treatment to both the engine and nacelle. Other contracts with Boeing and McDonnell-Douglas sponsored flight testing of the modified engines and confirmed 50 to 80 percent reductions in community noise exposure with little or no degradation in aircraft performance. These technologies were subsequently incorporated by Pratt & Whitney in their JT8D-200 series production engines and are used on the McDonnell-Douglas MD80 family of transports which meet the current FAA aircraft noise standards, Federal Air Regulation, Part 36 (FAR 36) Stage 3.

This dramatic progress has, from the outset, been achieved through close cooperation among NASA, the FAA, and the engine and airframe manufacturers with significant contributions from university and private research groups. NASA, through its Research Centers, provides research and technology talent, critical national facilities and mechanisms for technology transfer to the user community. There is a strong basis for cooperation with

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the FAA in its mission to provide aircraft certification and regulation, air traffic control, and aviation security. The FAR 36 Stage 3 noise standards for current civil transport aircraft are the result of an extensive cooperative effort between FAA and NASA working with the aviation industry to define, develop, and apply noise reduction technology and operational procedures to aircraft certified after 1975. NASA recognizes that continued growth in the air transportation system will create additional pressure for even quieter aircraft and more stringent noise rules. Additional technology advances are possible, but their applications can be achieved only with a combination of aircraft design modifications and operational procedures that require continued cooperation between NASA, FAA, the airlines, and the airframe and engine manufacturers.

The FAA and NASA have reaffirmed their commitment to cooperate in a number of areas of mutual interest and national need in aeronautics and aviation. This commitment was formalized in an agreement by the Agencies' Administrators in January 1990. The agreement establishes an FAA/NASA Coordinating Committee as the focal point for cooperative activities and establishes, through Memoranda of Understanding (MOU), six major areas for cooperation. The MOU on Environmental Compatibility Research specifically identifies objectives of cooperative R&D in aircraft noise reduction. Initial activities to develop a Memorandum of Agreement (MOA) for Subsonic Transport Noise Reduction have begun. This MOA will consolidate current cooperative activities and provide direction for planning future R&D requirements and programs.

NASA's current aircraft noise research programs are focused on advanced subsonic transports, future high-speed transports, and rotorcraft, including advanced concepts such as tiltrotor vehicles. Our unique national facilities and high quality fundamental research capabilities in aerodynamics, aeroacoustics, and propulsion, provided by in-house researchers often in collaboration with university and industry experts, provide the foundation for these vehicle-focused programs.

Further reductions in noise for subsonic aircraft will require an integrated approach. NASA researchers and industry designers believe that reductions of up to one-half of currently perceived levels are possible by further reductions in engine source noise, optimum engine/airframe integration, and new operating procedures using advanced high-lift aerodynamics.

New ultra-high-bypass engine designs provide opportunities to reduce source noise through fan design and nacelle treatment. NASA's current emphasis in subsonic propulsion systems is in Advanced Turboprop (ATP) systems. This program includes the prediction and reduction of source noise of high-speed propellers and research for reduction of cabin noise for turboprop-powered aircraft. A significant product of the current program has been increased understanding and prediction capability of aeroacoustic noise sources in propeller or fan systems. The ATP program is being redirected in FY 1991 to focus on noise reduction for ultra-high-bypass ducted propulsion systems. The

progress made in the ATP program will contribute directly to the redirected program.

The engine designs for the next generation of subsonic transports will have diameters 50 to 80 percent larger than current engines. A high degree of propulsion/airframe integration will be required for optimal performance at minimum noise levels for these systems. Future NASA technology development efforts in this area will utilize unique national facilities including the National Full-Scale Aerodynamic Complex (NFAC) at the Ames Research Center and the Aeroacoustics Laboratory at the Langley Research Center, together with highly sophisticated computational aerodynamics and aeroacoustics capabilities at both Centers. To achieve substantial additional noise reductions, it will be essential to minimize the noise generated by flow field interactions between the propulsion system and the aerodynamic surfaces on these new transport aircraft. NASA and the engine and airframe industries are pursuing technology to achieve this integration without significant performance and economic penalty.

Advanced, efficient high-lift systems are identified by airframe manufacturers as a high priority for new subsonic transport designs. Reduced complexity is considered important for lower cost, light-weight systems that contribute to manufacturing more competitive aircraft. In addition, there are synergistic benefits to be obtained for reducing airport community noise including: shorter take-off distances, reduced power requirements, slower approach speeds, steeper climb out profiles, and optimal flight path control. NASA's research focus is on integrated wing technology that provides efficient high-lift while minimizing the wake vortex hazard to following aircraft. The utilization of these technologies in new takeoff and landing procedures is an area requiring close coordination and cooperation with the FAA and aircraft operators.

The White House Office of Science and Technology Policy (OSTP) published reports in 1985 and 1987 recommending development of technology for future long-distance high-speed civil transport aircraft with top priority and emphasis on environmental barrier issues. In FY 1990, NASA initiated a program to determine the environmental barriers, including noise, that may exist for a potential high-speed civil transport, and to develop a technical basis for establishing and meeting acceptable environmental standards. FAA has proposed that FAR 36 Stage 3 noise levels would be an appropriate goal for a high-speed civil transport. NASA estimates that a reduction to one-fourth of current levels of unsuppressed high-speed jet engines as perceived by the human ear will be required to achieve this level. Research has been initiated to develop suppressor and engine cycle technology to meet this goal. In addition, innovative low-speed, high-lift concepts are being investigated which will permit operational procedures to be employed to minimize noise impact on the airport community. Initial results show promise that the aggressive noise goals can be met.

Sonic boom research is being conducted to determine the feasibility of supersonic flight over populated areas with acceptable sonic boom levels.

Advanced aircraft configurations are being investigated to eliminate the undesirable effects of sonic boom on the ground. Other studies emphasize the efficient subsonic overland flight of a high-speed civil transport to eliminate the possibility of sonic boom altogether.

NASA is developing technology which might be used by private industry to eliminate environmental barriers to a high-speed civil transport, including aircraft noise, as the top priority for its high-speed flight research program.

In rotorcraft noise research, NASA has just completed a 6-year cooperative program with industry, the FAA, and the Army. Prediction techniques and noise reduction concepts were developed that should result in quieter rotor system designs that will benefit both the civil and military users of rotorcraft. Concepts currently in development include: advanced quiet rotor tips, vortex suppression techniques, and active rotor control.

The tiltrotor vehicle concept, demonstrated by the NASA/Army/Bell XV-15 and under development for the U.S. Marines as the V-22 Osprey, combines the forward flight characteristics of a fixed wing aircraft with the vertical takeoff and landing capability of a rotorcraft. It also offers opportunities to utilize these unique characteristics for noise abatement flight procedures. Simulations in ongoing research have shown that steep, 15 degree approaches are possible to minimize community noise impact around airports and vertiports. A cooperative flight test program with Bell Helicopter Textron utilizing the XV-15 has identified significant reductions in noise levels for flyover and approach procedures for various combinations of rotor and wing loading conditions. A civil tiltrotor aircraft taking advantage of these characteristics may provide the answer to the search for a "friendly neighbor" rotorcraft.

In summary, NASA is developing the fundamental knowledge base in emerging technology areas for various classes of aircraft which offer the potential for major improvements in reducing aircraft noise. With the growth of the air transportation system, and of populations near the airports, and the further development of new vehicle types, continuing noise research is required to assure that future generations of aircraft will be environmentally compatible with the airport community. Continued cooperation among government agencies, the aviation industry and the general public are essential in this endeavor.

Thank you Mr. Chairman. That concludes my prepared statement. I would be pleased to address any questions you may have.

Mr. TORRICELLI. Thank you, Dr. Rosen, very much.
Mr. McDaniel?

STATEMENT OF DALE MC DANIEL, DEPUTY ASSISTANT ADMINISTRATOR FOR POLICY, PLANNING AND INTERNATIONAL AFFAIRS, FEDERAL AVIATION ADMINISTRATION; ACCOMPANIED BY: JAMES DENSMORE, DIRECTOR, OFFICE OF ENVIRONMENT AND ENERGY; AND TOM MESSIER, DIRECTOR, RESEARCH AND DEVELOPMENT SERVICE

Mr. MCDANIEL. Thank you, Mr. Chairman. I appreciate your offer to summarize my complete statement, which will be submitted for the record. I welcome the opportunity to appear before you and the committee today to discuss our research and planning activities to reduce aircraft noise.

Joining me today is Mr. James Densmore, who is Director of our Office of Environment and Energy, and Mr. Tom Messier, Director of our Research and Development Service.

The FAA recognizes that aircraft noise is a concern in many communities throughout the United States. We estimate that today 3.2 million people currently reside in areas where noise levels exceed the standard for compatible land use. This represents a significant decrease from the mid-1970s, when an estimated 7 million people lived in such areas. We believe that by the year 2010 this number will further decrease to approximately 1 million people.

These dramatic gains result almost exclusively from the introduction of quieter aircraft. We completed the phase-out of the noisiest Stage 1 aircraft in 1986, and the aviation industry is well on its way to transitioning from Stage 2 to Stage 3 aircraft. Already, 40 percent of the national fleet is the quietest Stage 3 aircraft.

When an all-Stage 3 fleet is achieved, existing proven technology will have been exhausted. That technology was developed in FAA- and NASA-supported programs 10 to 25 years ago. There is no proven Stage 4 technology, but research continues.

Secretary Skinner has pledged Federal leadership in finding and implementing workable solutions to the aviation noise problem. As a result, the FAA and NASA Administrators have agreed to develop a cooperative noise reduction technology development program. This is rapidly taking shape in a multiyear, comprehensive effort, primarily directed at high bypass ratio engines and at lower drag aircraft on which to install them.

Realistically, even if this research is successful—and it is a difficult challenge—we cannot expect quieter aircraft in the fleet until well into the next century. That means that communities must find new and creative ways to better manage land use around airports, while avoiding operational constraints which limit the capacity of existing airports and threaten our ability to add new capacity.

While we will continue to work with NASA and others, it should be made clear that we cannot easily nor instantaneously develop quieter engines or airframes. Further noise reduction is technically a very difficult challenge. Our research emphasis will be placed on reducing fan noise generation, since future engine ducts are expected to have less volume available for inserting noise abatement

treatment materials. Research into lowering combustion noise will also be given a high priority, since new combustor designs are expected to have both higher temperatures and higher velocities.

We will also be exploring ways to reduce airframe noise by lowering drag, which will result not only in reduced noise but also in greater fuel efficiency.

In light of concerns with the DNL metric raised by the Environmental Protection Agency, as well as this committee at your April oversight hearings, we awarded a contract in June of this year, in cooperation with the Environmental Protection Agency, to examine the possible need for supplemental measures and for working in five other areas outlined in a letter which we have provided to the subcommittee staff. We still believe that DNL is the best available indicator of aviation noise annoyance. It has proven remarkably successful since being adopted 10 years ago as a national standard in response to the Aviation Safety and Noise Abatement Act. But if there are changes to that standard which would improve the usefulness of the measure, we would be eager to make them.

One concern, though, is that we not move away from a national standard toward a series of individual standards which would be applied at each airport in a different way.

In addition to our research efforts, we also provide funding for noise abatement programs. Since the authorization of the Airport Improvement Program in 1982, more than $26.3 million has been granted to airport sponsors for noise planning purposes, and $848 million for the purposes of carrying out those noise abatement plans which have developed.

Finally, Mr. Chairman, I would like to update the subcommittee on the status of the RE&D Advisory Committee on Noise since the hearing in April. We established a Noise Subcommittee dealing with aviation noise abatement technology. As you will recall, Mr. Del Balzo promised this during the April hearing. That subcommittee has been established with Mr. Jonathan Howe of NBAA as the Chairman; Mr. Seig Poritzky of AOCI as a member; Mr. David Hilton, Norris Haight from Douglas Aircraft, John Little from Boeing Aircraft, and Jim Muldoon from the New York and New Jersey Port Authority. Their first meeting is scheduled here in Washington on November 5th.

In closing, Mr. Chairman, I would like to reemphasize the FAA's commitment to an aggressive and proactive research program for aircraft noise abatement. While this is only my second appearance before you, I am aware of this subcommittee's longstanding support for our research and development programs, and I thank you for that continuing support. We look forward to a continuing relationship and working with you closely, and I look forward to answering any questions you might have. Thank you.

[The prepared statement of Mr. McDaniel follows:]

STATEMENT OF DALE E. McDANIEL, DEPUTY ASSISTANT ADMINISTRATOR FOR POLICY, PLANNING AND INTERNATIONAL AVIATION, FEDERAL AVIATION ADMINISTRATION, BEFORE THE HOUSE COMMITTEE ON SCIENCE, SPACE, AND TECHNOLOGY, SUBCOMMITTEE ON TRANSPORTATION, AVIATION AND MATERIALS, CONCERNING RESEARCH AND PLANNING ACTIVITIES TO REDUCE AIRCRAFT NOISE. September 27, 1990.

Mr. Chairman and Members of the Subcommittee:

I welcome the opportunity to appear before you today to discuss our research and planning activities to reduce aircraft noise. Joining me today is James Densmore, Director of the Office of Environment and Energy.

The FAA recognizes that aircraft noise is a concern in many communities throughout the United States. We estimate that 3.2 million people currently reside in areas where noise levels exceed the standard for compatible land use. This represents a significant decrease from 1970, when an estimated 7 million people in the United States lived in such areas. We believe that by the year 2010 this number will decrease to just over 1 million.

These dramatic gains result almost exclusively from the introduction of quieter aircraft. We completed the phase out of the noisiest, Stage 1, aircraft in 1986. The aviation industry is well underway in transitioning from Stage 2 to Stage 3. Already 40 percent of the U.S. fleet is Stage 3. When an all Stage 3 fleet is achieved existing technology will have been exhausted. That technology was developed in FAA and NASA supported programs

ten to twenty-five years ago. There is no proven Stage 4 technology, but research continues.

Secretary Skinner has pledged Federal leadership in finding and implementing workable solutions to the aviation noise problem. As a result, the FAA and NASA Administrators have agreed to develop a cooperative noise reduction technology development program. This is rapidly taking shape as a multi-year, comprehensive effort, primarily directed at higher bypass ratio engines and at lower-drag aircraft on which to install them.

Realistically, even if this research is successful, we cannot expect quieter aircraft in the fleet until well into the next century. That means communities must find new and creative ways to better manage land use around airports, while avoiding operational constraints which limit the capacity of existing airports and threaten our ability to add new capacity.

While we will continue to work with NASA and others, it should be made clear that it will not be easy to develop significantly quieter aircraft engines. Further noise reduction is technically a very difficult challenge. Our research emphasis will be placed on reducing fan noise generation since future engine ducts are expected to have less volume available for inserting noise abatement materials. Research into lowering combustion noise will also be given a high priority since new combustor designs are

expected to have both higher temperatures and higher velocities. We will also be exploring ways (both design and materials) to reduce airframe noise by lowering drag. The benefits to be gained are two fold, lower drag aircraft will use less thrust and thus both reduce engine noise and improve fuel economy.

Technical planning is already underway and studies have been initiated to evaluate the limits of current technology. Further noise reduction presents a difficult challenge. However, most experts agree that significant results are attainable.

In light of concerns raised by EPA, as well as members of this Subcommittee in your April oversight hearing, with the DNL metric, we awarded a contract in June of this year to examine the possible need for supplemental measures. In addition, we have agreed with EPA that five long-term issues need further study. They are:

- o the extent of impacts outside 65 Ldn that should be reviewed in an environmental impact statement;

- o the manner in which noise impacts are determined, including whether aircraft noise impacts are fundamentally different from other transportation noise impacts;

- o the manner in which noise impacts are described;

o the range of FAA-controlled mitigation options (noise abatement and flight track procedures) analyzed; and

o the relationship of the Airport Noise Compatability Program (Part 150 process) to the Environmental Impact Statement (EIS) process, including ramifications to the EIS process if they are separate, and exploration of the means by which the two processes can be handled to maximize benefits.

In addition to EPA, we will be working closely with DOD, HUD, VA, Justice and CEQ. A copy of the June 15 letter from the FAA Deputy Administrator to the EPA Deputy Administrator outlining the scope of the agreement between the two agencies has been provided to Subcommittee staff. The letter also outlined several interim measures pending the results of the long-term study. Significant among them are the inclusion of single event analysis in Draft or Final EIS's for several airports, including Baltimore-Washington International. The letter also detailed the types of information to be included in a single event analysis.

We still believe that DNL is the best available indicator of aviation noise annoyance. It has proven remarkably successful since being adopted ten years ago as the national standard. But if there are changes to that standard which would improve its usefulness that is even better. One concern, though, is that we

not move away from a standard approach to a series of different measures at individual airports.

In addition to our cooperative noise technology program with NASA and our new working agreement with EPA, the FAA Office of Environment and Energy (AEE) is actively involved in initiatives for aircraft noise abatement. By means of development of advanced methodologies for the assessment of environmental impacts, AEE serves as the FAA's technical focal point for analysis, evaluation, policy, training, research and engineering on aviation-related environmental matters. Through the continuous support and improvement of computer tools, such as the Integrated Noise Model (INM), we are able to remain in the forefront of the state-of-the art of airport noise analyses. Improvements to INM, which has been shipped to over 600 users in 30 countries, include those in speed, operation, census interface, and graphical displays.

AEE is also responsible for insuring compliance with the National Environmental Policy Act of 1969 as well as establishing technical noise standards by providing policy and technical guidance to our Aircraft Certification Directorates. Funding through AEE to the Transportation Systems Center, a Department of Transportation engineering systems facility in Cambridge, Massachusetts, is used in part to evaluate the extent to which aircraft manufacturers are incorporating existing noise abatement technology in current

production aircraft. To ensure that noise data analysis is done in accordance with FAA regulations, AEE also provides funding for the validation of the noise certification data analysis procedures used by aircraft manufacturers and acoustical consultants. Attached to my prepared statement is a listing of all of our RE&D noise related projects funded since fiscal year 1988 to date.

In addition to our research efforts, we also provide funding for noise abatement programs. Since the authorization of the Airport Improvement Program (AIP) in 1982, over $26.3 million has been granted to airport sponsors to develop noise compatibility plans and $848.6 million to carry out recommendations in the plans. As you know, under AIP, a minimum of 10 percent of available funds is set aside for noise compatibility planning and program implementation. The largest share of these funds is used for acquiring noise impacted land adjacent to airports. The other major implementation strategy is soundproofing of schools and residences.

Finally, Mr. Chairman I would like to update the Subcommittee on the status of RE&D Advisory Committee Noise Working Group. As you will recall, in April during your oversight hearing, Mr. Del Balzo, the Executive Director for System Development and I were asked about the formation of an advisory committee on airport noise abatement. The RE&D Advisory Committee has responded with the formation of the Noise Working Group (NWG). The NWG is

chaired by Mr. Jonathan Howe of the National Business Aircraft Association (NBAA). Other members are Seig Poritzky, Airport Operators Council International; David Hilton, Gulfstream Aerospace Company; Norris Haight, Douglas Aircraft; John Little, Boeing Aircraft; and Jim Muldoon, New York/New Jersey Port Authority. Its first meeting, to develop a charter and organize an agenda, is scheduled for November 5 at the NBAA office, here in Washington, D.C.

In closing Mr. Chairman, I would like to reemphasize the FAA's commitment to an aggressive and proactive research program for aircraft noise abatement. While this is only my second appearance before you, I am aware of this Subcommittee's longstanding support for our research, engineering and development programs, and I would like to thank you. We look forward to a continued close working relationship with the Members of this Subcommittee and its staff as we address the many difficult issues involved in abating aviation noise.

That completes my prepared statement. We would be pleased to respond to any questions you may have.

09/24/90 2:00pm

OFFICE OF ENVIRONMENT AND ENERGY
RE&D NOISE RELATED PROJECTS
FY-1988

PROJECT	DESCRIPTION
Analysis & Evaluation	
Integrated Noise Model (INM) Support & Development	Continued development of the INM to Version 4.10 at TSC.
Heliport Noise Model (HNM) Version 2 Development	Continued development of the HNM to Version 2.2. at TSC
Airport Network Flow Model (AIRNET) Development	Development of AIRNET model to determine the economic and noise impacts of certain airport actions.
Research & Engineering	
Aircraft En Route Engine Noise	A report on the impact of aircraft en route noise on communities.
European Studies on Community Response to Noise	Document search of European publications relating to community responses to noises and the translation of selected publications into English.
Collect and tabulate data on people's reaction to noise	Document search of data relating to people's reactions to noise.
Analysis on Soundproofing	Analysis of current soundproofing measures in order to develop agency methodology and guidlines.
PDP-11/24 Support	Creation of programs for the PDP-11/24 to analyze noise measurement data.
Environmental Research and Analysis	Research, analysis, and programming support provided by TSC.

09/24/90 2:00pm

OFFICE OF ENVIRONMENT AND ENERGY
RE&D NOISE RELATED PROJECTS
FY-1989

PROJECT	DESCRIPTION
Analysis & Evaluation	
Integrated Noise Model (INM) Support & Development	Continued development of the INM to Version 4.10 at TSC.
INM Census Interface Routine Development	Development of a computer program to determine the population impacted within INM noise contours.
Nationwide Airport Noise Model (NANIM) Development	Continued development of NANIM and evaluate the economic feasiblity of an SST aircraft which can meet Stage 3 noise levels.
Airport Network Flow Model (AIRNET) Development	Continued support and expansion of the AIRNET model.
Policy & Training	
Interactive Sound Information System (ISIS)	Continuing development of the second generation of ISIS and revise the community involvement training program.
Environmental Workbook Development	Develop workbook and revise orders pertaining to the environment.
DNL Brouchure, Community Invovlement Manual, Environmental Tracking System	Development of a brouchure explaining DNL, a manual for community involvement, and a computerized data base for tracking Part 150 programs.
Research & Engineering	
ARTS IIIA Data Processing Capability	Development of computer programs to read ARTS IIIA radar disk on the PDP-11/24.
Evaluation of Proposed Aircraft Noise Surveys	Review community response testing results and recommend necessary advance testing procedures.
European Studies on Community Response to Noise	Document search of European publications relating to community responses to noises and the translation of selected publications into English.
PDP-11/24 Support	Creation of programs for the PDP-11/24 to analyze noise measurement data.
Test Stand Engine Noise Prediction	Study to investigate the effect of specific physical phenomena upon sound propagation at low angles.

09/24/90 2:00pm

OFFICE OF ENVIRONMENT AND ENERGY
RE&D NOISE RELATED PROJECTS
FY-1989

PROJECT	DESCRIPTION
Research & Engineering (cont.)	
Aircraft Noise and Engine Design	Technology assessment in cooperation with NASA to design the next generation of quieter aircraft engines.
Aircraft En Route Engine Noise	A report on the impact of aircraft en route noise on communities.
Environmental Research and Analysis	Research, analysis, and programming support provided by TSC.

09/24/90 2:00pm

OFFICE OF ENVIRONMENT AND ENERGY
RE&D NOISE RELATED PROJECTS
FY-1990

PROJECT	DESCRIPTION
Analysis & Evaluation	
Integrated Noise Model (INM) Support & Development	Continued development of the INM to Version 4.10 at TSC.
Heliport Noise Model (HNM) Version 2 Development	Continued development of the HNM to Version 2.2. at TSC
INM, AEM, HNM, & EDMS Workshop Development	Development of curriculum and aids for workshops on computerized models.
Airport Network Flow Model (AIRNET) Development	Continued support and expansion of the AIRNET model.
Single Event and Day/Night Avg. Noise Levels Comparison	A study to compare the differences between SEL and DNL noise levels.
Noise Abatement Cost/Benefit, Phase 1	Literature search of studies which evaluated the benefits/disbenefits of airport noise exposure.
Noise Abatement Cost/Benefit, Phase 2	Development of a process to evaluate benefits/ disbenefits of airport noise abatement.
Appendix G Certification Handbook	Development of a comprehensive handbook on the noise certification procedures for small prop-driven aircraft.
Policy & Training	
Interactive Sound Information System (ISIS)	Continuing development of the second generation of ISIS and revise the community involvement training program.
Research & Engineering	
Wilderness Aircraft Noise Plans Evaluation	Analysis and support for Forest Service and Park Service aircraft overflight studiec.
ARTS IIIA Data Processing Capability	Development of computer programs to read ARTS IIIA radar disk on the PDP-11/24.
Environmental Research and Analysis	Research, analysis, and programming support provided by TSC.

09/24/90 2:00pm

OFFICE OF ENVIRONMENT AND ENERGY
RE&D NOISE REALTED PROJECTS
FY-1991

PROJECT	DESCRIPTION
Analysis & Evaluation	
Integrated Noise Model (INM) Support & Development	Continued development of the INM to Version 4.10 at TSC.
Heliport Noise Model (HNM) Version 2 Development	Continued development of the HNM to Version 2.2. at TSC
Programming and Analysis	Research, analysis, and programming support provided by TSC.
Single Event and Day/Night Avg. Noise Levels Comparison Followup	A study to compare the differences between SEL and DNL noise levels.
NANIM Update	Continued development of NANIM and evaluate the economic feasiblity of an SST aircraft which can meet Stage 3 noise levels.
INM, AEM, HNM, & EDMS Workshop Development	Development of curriculum and aids for workshops on computerized models.
Noise Abatement Cost/Benefit, Phase 3	Continued development of a process to evaluate benefits/disbenefits of airport noise abatement.
Noise Analysis Handbook	Development of a comprehensive handbook on aircraft noise analysis.
Noise Metrics Training Program	Development of the curriculum for a training program on noise metrics.
Policy & Training	
Noise Technology Support	Continued support and analyses for noise programs provided by TSC.
Interactive Sound Information System (ISIS) Maintenance	Continuing development of the second generation of ISIS.
Part 150 Program Effectiveness Evaluation	Quantification of the effectiveness of approved programs in controlling aviation noise and mitigating the noise impacts.
Community Involvement Workshop	Training for airport operators and FAA staff in conducting and reviewing community involvement elements of FAR Part 150 programs.
Part 150 Implementation Order	Working order for conducting the FAR Part 150 Program, providing detail requirements for content, airport operator advisement, and FAA review.

09/24/90 2:00pm

OFFICE OF ENVIRONMENT AND ENERGY
RE&D NOISE RELATED PROJECTS
FY-1991

PROJECT	DESCRIPTION
Research & Engineering	
Noise Abatement Technology Applications Evaluation	Study by TSC to evaluate the extent to which aircraft manufacturers are incorporating existing noise abatement technology in current production aircraft.
Noise Measurement & Analysis Practices for Aircraft Certification Evaluation	Study by TSC to continue to validate the noise certification data analysis procedures used by aircraft manufactuerers and acoustical consultants.
Small Propellor-Driven Airplane Approach Noise	Development of an approach noise level prediction method for turboprop powered small propeller-driven airplanes and commuter category airplanes.
ARTS IIIA Data Processing System Enhancements	Development of computer programs to read ARTS IIIA radar disk on the PDP-11/24.
Noise Laboratory Study	Study to determine space and equipment requirements for in-house noise lab.
Simplified Large Helicopter Certification Procedures	Study to explore the possiblity of simplifying the noise certification procedures for large helicopters in hopes of reducing the costs of helicopter noise tests.
Small Airplane Noise Certification Procedures Update	Update the technical prcedures handbook on noise certification requirements for small propeller-driven airplanes.
Noise Policy Handbook	Develop a noise policy handbook by reviewing and compiling various agency noise policy letters into a single document.

Mr. TORRICELLI. Thank you, Mr. McDaniel.
Mr. Mead?

STATEMENT OF KENNETH M. MEAD, DIRECTOR, TRANSPORTATION ISSUES, RESOURCES, COMMUNITY, AND ECONOMIC DEVELOPMENT DIVISION, U.S. GENERAL ACCOUNTING OFFICE

Mr. MEAD. Thank you, Mr. Chairman.

Our first point today—we have three points—but our first point is that you need a national noise policy. What we have in place now is at such a broad level of generality as to provide no guidance at all. What has developed in this void, and will increasingly develop over this decade, is a patchwork quilt-style of noise regulations that are imposed at the local level. That would prove disruptive to interstate commerce, transportation in general, and will result in dumping of noise on communities that have not adopted noise restrictions.

Based on a survey we did of 140 airports that account for over 95 percent of the enplanements, we found that in the latter part of the 1990s, beginning in 1995, you will see a great proliferation of local noise restrictions.

Second, we found that if you want to ban Stage 2 by the year 2000, you need to act now in order to give the manufacturers and aircraft companies sufficient lead time. We found that Stage 3 conversion by year 2000 is clearly feasible. Our cost estimate is in the neighborhood of between $2 billion and $5 billion. Under the higher cost figure of $5 billion, 2,039 aircraft would have to be replaced that would not otherwise have been replaced. Under a less expensive alternative that includes retrofitting, 471 aircraft would be replaced; the other 1,569 would be retrofitted.

A second point, Mr. Chairman, is that in formulating a national aircraft noise policy, DOT needs to resolve several key issues, chief among them when to ban noisier aircraft, and what further actions to take in addition to banning such operations should local action be preempted, and if so, in what areas. And finally, whether the Federal Government should be responsible for mitigating noise beyond the immediate vicinity of the airport.

On that latter point I would like to point out that in our work on the Expanded East Coast Plan, we learned that in miles distant from the airport where people were complaining bitterly about the noise levels that at least they felt they were impacted, they were not within the definition of a noise- impacted area, and therefore were not eligible for Part 150 assistance of any type. We think that is an area that the Congress should explore.

Our third point is that FAA's research on aircraft noise could be more effective if the agency established project priorities and linked those projects to specific objectives that were contained, for example, in a national noise policy. FAA has several projects underway in noise research but they are modest in both cost and scope, recognizing that the subcommittee has recommended increasing the funding of environmental projects, of which noise is one component, from about $2 million in fiscal year 1990 to $4.4 million in 1991, to $5.4 million in fiscal year 1992.

Noise is the largest component of the environmental research budget. It's about $1.5 million now. That's compared to $170 million total for FAA R&D, and compared to over $18 million by NASA. Almost half of the $1.5 million in noise research funding is related to developing methodologies for quantifying the impact of noise.

We asked FAA what projects would be implemented with additional funding, and they told us they would do several things. They would contribute funding to NASA's research, for example, in the area of aircraft noise. FAA would also undertake to include developing new training techniques for improving the way FAA deals with the public on noise issues, and enhancing planning tools. But these initiatives were not part of a plan that showed how overall research priorities were established, how noise projects related one to the other, and how their completion furthered the agency's goal of reducing community exposure to aircraft noise. We were told that such a plan was not produced for either current or planned projects. In view of the fact that there are limited funds in this area, and as we testified before this subcommittee in April of last year, a plan is needed to help ensure that projects are distinguished in importance.

That concludes our statement, sir.

[The prepared statement of Mr. Mead follows:]

United States General Accounting Office

GAO Testimony

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Issues That Need to Be Considered In Formulating Strategies to Reduce Aviation Noise

Statement by
Kenneth M. Mead
Director, Transportation Issues
Resources, Community, and Economic
Development Division

Before the
Subcommittee on Transportation, Aviation
and Materials
Committee on Science, Space and Technology
House of Representatives

GAO/T-RCED-90-111

GAO Form 160 (12/87)

Mr. Chairman and Members of the Subcommittee:

We appreciate this opportunity to summarize our work on aircraft noise and to provide our observations on research being done to mitigate it. As you know, passage of the Airline Deregulation Act of 1978 led to an increase in the number of aircraft operations. Unfortunately, when operations increase, there is a corresponding increase in aircraft noise. Airport operators have reacted to community complaints about aircraft noise by adopting noise restrictions that may, in many instances, restrict access to airports. The increasing number of local restrictions has raised concerns about the effect that controlling noise has on air commerce.

Presently, the responsibilities for controlling aircraft noise are shared between airports and the Federal Aviation Administration (FAA). Airports are responsible for controlling aircraft noise and for mitigating its effects in the immediate airport vicinity. Through its aircraft certification regulations, FAA ensures that aircraft in operation do not exceed established noise levels. Furthermore, under the Aviation Safety and Noise Abatement Act of 1979, as amended, FAA assists airports in developing noise mitigation programs that are consistent with safe air traffic operations. State and local governments, while not directly responsible for controlling aircraft noise, are often consulted when airports develop noise reduction programs.

Our observations today are based on both our on-going and completed reviews. At the request of the Chairman of the Subcommittee on Aviation, House Committee on Public Works, we are currently reviewing the impact of local noise regulations on airport and airline operations. In addition, as requested by the Subcommittee for today's hearing, we are providing information on aircraft noise research. Our reports have identified airports' efforts to mitigate noise and examined the impact of noise created

by major airspace changes. Today, we will discuss the impact of not having sufficient federal guidance on how to address the aviation noise problem, the issues needing resolution before an adequate national aircraft noise policy can be is formulated, and FAA's research on aircraft noise. We will make three points:

-- First, the Department of Transportation's (DOT) February 1990 National Transportation Policy does not provide sufficient guidance on how the different groups involved can work together to reduce aircraft noise. These groups include the federal government, aviation industry, state and local governments, and affected community groups. As a result, airports such as Los Angeles are planning to impose noise restrictions that the airlines vigorously oppose. Because guidance is insufficient, local airport access regulations vary from airport to airport across the country. The resulting "patchwork quilt" style of regulation has caused carriers to adjust schedules or reduce service.

-- Second, in formulating a national aircraft noise policy, FAA and DOT need to resolve several key issues, chief among them being when to ban operations using noisier aircraft, what further actions to take in addition to banning such operations, and whether the federal government should be responsible for mitigating noise beyond the immediate vicinity of an airport.

-- And, third, FAA's research on aircraft noise could be more effective if the agency established project priorities and linked these projects to specific objectives that contribute to reducing community exposure to aircraft noise. Such priorities and objectives are currently not linked.

We will now discuss these points in detail.

CONSEQUENCES OF INSUFFICIENT FEDERAL GUIDANCE

Aircraft noise has become a significant national issue in several respects. On the one hand, noise lessens the quality of life for millions of people who live near airports. On the other hand, local noise restrictions have caused airlines to alter schedules or curtail service to many cities. Unresolved noise disputes threaten the continued growth of airports and their ability to serve the growing demands of air travellers. DOT's commitment to addressing these problems is contained in its National Transportation Policy. In our opinion, however, this policy's statement on aircraft noise is too general to resolve the core issues surrounding the aircraft noise problem. Similarly, FAA's recently issued "Strategic Plan", the agency's blueprint for meeting the aviation challenges of the 1990s, provides minimal information regarding FAA's plans to address aircraft noise issues. The plan states only that the agency will provide strong leadership in mitigating the adverse environmental impact--principally from noise--that aviation has on the public. FAA acknowledges that it needs to develop an action plan to implement this strategy.

The practical effect of insufficient guidance is that airports, airport operators, and state and local governments are confused over what to do. According to the transportation policy, the federal government should work with the aviation industry, state and local governments, and community groups to encourage the development of local tools--such as land use planning--to mitigate the noise problem. At the same time, the policy also states that the government should work with local communities and airport users to "deter local actions that unreasonably interfere with system efficiency or increase system costs." The difficulty is that no explanation is given about which local tools cause unreasonable interference or increase system costs or about how reasonableness should be measured.

The absence of clear direction has had an impact on airports. Airports continue to impose local noise restrictions, such as requiring the use of quieter aircraft during specific times of the day. Noise emissions standards are established in 14 C.F.R. part 36. These regulations prescribe noise emission standards for manufacturing and certificating aircraft. They, in effect, identify three stages of noise standards, with Stage 1 being the loudest and Stage 3 the quietest. For example, Boeing 707s (without engine modifications) flown in the 1960s and 1970s are Stage 1 aircraft. Today's Boeing 757s operated by many U.S. airlines meet Stage 3 noise standards. Access restrictions that are uncoordinated and airport-specific have created what many describe as a "patchwork quilt" of noise regulations.

At the request of the Chairman of the Subcommittee on Aviation, House Committee on Public Works, we are reviewing the impact of noise restrictions on airports and airlines. We testified on our preliminary analysis this morning.[1] Our work shows that 3 of 140 airports surveyed currently have local bans on the use of Stage 2 aircraft. Furthermore, by the year 2000, 77 airports are likely to ban Stage 2 operations.

Recent actions by the Los Angeles International Airport and by other Southern California airports--notably Ontario and Van Nuys--illustrate this trend of local restrictions. Los Angeles and Ontario are planning to require that all Stage 2 operations be phased out by the year 2000, and Van Nuys would be even more restrictive by imposing this requirement by the year 1998. On the one hand, the number of dwelling units within Los Angeles' noise-impacted area are estimated to have decreased from 100,000 in 1972 to 26,600 in 1989, and it may decrease to 15,000 after the total Stage 2 phaseout in 2000. On the other hand, prohibiting a wide

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[1]Aviation Noise: A National Policy Is Needed (GAO/T-RCED-90-112, Sept. 27, 1990).

cross-section of most airlines' fleets from operating at these airports will cause serious scheduling problems for airlines and cargo carriers. About 60 percent of the U.S. fleet is composed of Stage 2 aircraft. Existing noise restrictions have already caused some air carriers to reduce service to such locations as Orange County, San Francisco, and Boston.

Aircraft operators also are affected by inadequate federal guidance in other ways. Sometimes local noise restrictions have led to the inefficient use of aircraft. For example, airlines have used the quieter Boeing 757 (Stage 3) aircraft to meet noise restrictions when smaller Boeing 727 (Stage 2) aircraft would be better suited to traffic levels in the market. Similarly, when an evening flight using a Stage 2 aircraft is delayed by bad weather, locally imposed nighttime noise curfews sometimes cause the flight to be cancelled or redirected to an alternate airport not subject to a Stage 2 curfew. In addition, without federal guidance on a firm date on which a Stage 2 ban would take effect, aircraft owners--lessors in particular--are uncertain over when to make the financial commitments needed to either buy newer and quieter Stage 3 aircraft or modify their Stage 2 aircraft by installing new engines or devices to reduce the noise of existing engines. The latter technique is known as hushkitting.

While FAA and DOT express concern over the impact of local restrictions, such as those contemplated by Los Angeles, they have not provided guidance on critical issues such as when Stage 2 operations will be banned. In reaction to the proposal from the Los Angeles and Ontario airports, FAA has asked airport authorities to respond to a list of 15 questions, many requiring extensive economic analysis. For example, FAA is asking the authorities to quantify "the estimated direct, indirect, and induced economic impacts of each [noise reduction] alternative on the local and national level, in areas such as jobs, income, and earnings." DOT officials have told us that the Secretary is

considering several noise policy proposals, although no details are now available.

ISSUES IN ESTABLISHING AN AIRCRAFT NOISE POLICY

In our view, a national aircraft noise policy would provide the federal guidance needed. In our testimony today before the House Committee on Public Works, we discussed the need for such guidance. However, such a policy must balance the concerns of local communities, airports, and airlines. Therefore, before formulating this policy, three key points need to be resolved. These are (1) when to ban operations using noisier aircraft, (2) what further actions to take in addition to banning such operations, and (3) whether the federal government should be responsible for mitigating noise beyond the immediate vicinity of an airport.

How Soon Should Stage 2 Aircraft be Phased Out?

Federal regulations used in certificating aircraft do not restrict use of Stage 2 aircraft. However, after 1977, any new transport aircraft design submitted to FAA for certification must conform to more stringent Stage 3 noise standards. Some local airports have imposed their own regulations and banned all Stage 2 operations. With the potential increase in the number of airports requiring a greater percentage of Stage 3 operations, a key question is whether or not the federal government should establish a firm date after which all Stage 2 operations are banned.

According to airline and aircraft industry officials, phasing out Stage 2 aircraft before the year 2000 is not feasible. Most passenger airlines indicate that they plan to phase out Stage 2 aircraft voluntarily between the years 2000 and 2010. As part of our work for the House Committee on Public Works, we recently

completed a survey of 140 airports. Responses suggest that, in the absence of any federal action, a large proportion of the nation's largest airports are likely to prohibit the use of Stage 2 aircraft by the year 2000. In these circumstances, the airline officials we spoke with believe that a de facto Stage 2 ban will result because airlines will not be able to use Stage 2 aircraft at enough airports to operate such aircraft efficiently.

Therefore, if more airports implement these restrictions and no federal action is taken, Stage 2 aircraft would be effectively phased out by the year 2000. Federal policy, supported by regulation, could delay this phaseout by preventing airports from adopting new noise restrictions that would lead to a Stage 2 ban by the year 2000. However, once the federal government preempts local regulation, the potential liability for the noise and the financial risk this entails could become a federal responsibility. If the government chooses to preempt local regulation, then the policy issue is whether to (1) adopt the year 2000 as a reasonable date for phasing out Stage 2 aircraft or (2) prevent airports from adopting this or some earlier date.

What Other Actions Are Needed?

Two methods are available to reduce noise: noise abatement, such as a ban on Stage 2 aircraft, which reduces noise at the source; and noise mitigation strategies, which focus on lessening the impact of noise on the people who are exposed to it, such as by soundproofing homes and schools and improving land-use planning.

Noise abatement is more cost-effective and sometimes easier to implement than noise mitigation when an airport is located in an urban area where large numbers of people are affected by aircraft noise. With noise abatement, the cost per person is low for a large number of people. By contrast, the cost per person of reducing noise exposure--by, for example, soundproofing homes in a

large metropolitan area--is so large that it is not usually a viable alternative to noise abatement.[3] Furthermore, noise mitigation is sometimes difficult to implement. As we found in our report on noise reduction activities at eight airports,[4] making the use of land around airports more compatible with aircraft noise generally required cooperation from local communities and substantial funding. At Atlanta's Hartsfield International Airport, for example, land-use measures--primarily large-scale purchase of homes--have been implemented extensively.

There are limits to a noise abatement strategy. Aircraft manufacturers do not believe it is possible to make aircraft significantly quieter than the quietest aircraft being built today while also retaining fuel efficiency. Even these relatively quiet aircraft expose people who live close to the airport to a high level of noise. FAA estimates that 1.1 million people will continue to be exposed to excessive noise levels even if Stage 2 planes are banned.

Reducing aircraft noise to reasonable levels close to an airport therefore requires both noise abatement and noise mitigation measures. To ensure that land use is compatible with aircraft noise, including the establishment of local zoning regulations, long-range planning probably will continue to be needed--even if a Stage 2 ban is adopted.

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[3]For example, it is estimated that about 1 million people living in 200,000 dwelling units reside in noise-affected areas around New York's La Guardia airport. Assuming that quieting engines costs about $2 million per aircraft, it would cost about $360 million dollars to convert the roughly 180 Stage 2 aircraft that fly daily into and out of La Guardia to Stage 3 standards. On the other hand, at about $5,000 each, it would cost about $1 billion to soundproof the impacted dwellings around La Guardia. And once the aircraft are converted, they would have obvious noise reduction benefits at the other airports that they serve.

[4]Aircraft Noise: Eight Airports' Efforts to Mitigate Noise (GAO/RCED-89-189, Sept. 14, 1989).

Should Planning for Land Use Compatibility Be Available to More Communities?

A major issue to be resolved before establishing a national aircraft noise policy is whether areas located beyond the immediate airport vicinity should be included in federally sponsored noise mitigation efforts. An integral component of that issue is the way aircraft noise exposure is currently measured.

To implement the Aviation Safety and Noise Abatement Act, FAA developed the Part 150 program for airport operators to plan and be funded for making land use near their facilities compatible with airport operations. The program's purpose is to encourage airports to prepare noise exposure maps showing areas of land uses incompatible with high noise levels and to propose a program to reduce this incompatibility. After FAA accepts the proposed program, the airport is eligible for federal funding to implement projects such as land acquisition and soundproofing.

The measurement of noise exposure has been a contentious issue among FAA, airports, and local communities. Currently, noise exposure is quantified by the "day-night sound level" measure, a practice used by several federal agencies. This measure, Ldn, represents an energy-averaged sound level for a 24-hour period measured from midnight to midnight, with noise occurring from 10 p.m. to 7 a.m. counting ten times as much as noise at other times. This difference occurs because little background noise exists to mask aircraft noise during this period, and people also are more sensitive to noise when they are trying to sleep. Connecting locations on a map with the same Ldn levels produces lines called "noise contours," much like a weather map shows isotherm lines of the same temperature. An Ldn value of 65 decibels is the threshold above which FAA and other agencies consider land incompatible for residential use, including schools or hospitals. As a result, the area bound by the Ldn 65 noise contour is considered "noise-impacted" and is eligible for Part 150

assistance. From fiscal years 1982 through 1989, FAA obligated over $720 million under the Part 150 program.

Expanding the definition of a noise-impacted area to, for example, the Ldn 60 contour, has operational and financial implications. Under this definition, airports and FAA would need to develop noise mitigation measures to account for the impact of aircraft noise in these outlying areas. For instance, the effect of new jet routes and altitudes would need to be assessed over a much larger geographical area. From a financial perspective, expanding Part 150 eligibility to areas outside of Ldn 65 will increase existing program costs. For example, while the number of people residing within Ldn 60 contours has not been established, the Environmental Protection Agency estimated in 1979 that 45 million people lived in Ldn 55-65 areas while 5 million lived in areas of Ldn 65 or greater.

FAA's Expanded East Coast Plan, for example, was implemented without addressing the effect of aircraft noise in areas beyond the immediate airport vicinity. This plan was implemented in response to air traffic delays at the New York City Metropolitan area's three major airports and was a major revision of air traffic control routes and flight procedures in the Eastern United States. In evaluating the plan, we found that many people living up to 40 miles away from the New York area airports complained repeatedly and bitterly about aircraft noise.[5] In response, FAA said that little could be done for residents outside the Ldn 65 noise contour, and according to the Ldn measure, the average noise they were exposed to did not entitle them to federally funded relief.

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[5]Aircraft Noise: Implementation of FAA's Expanded East Coast Plan (GAO/RCED-88-143, Aug. 5, 1988).

FAA'S RESEARCH EFFORTS IN MITIGATING AIRCRAFT NOISE

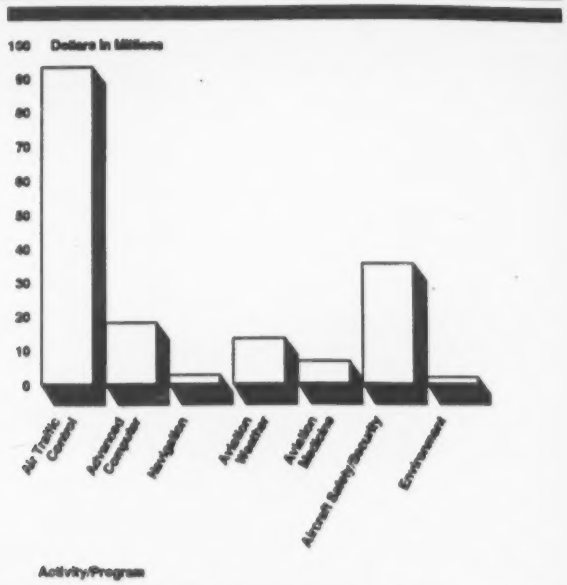
In view of the long-term nature of the aircraft noise problem, research can be a critical component in improving noise abatement and mitigation techniques. FAA has identified projects it would undertake if provided with additional funding. The effectiveness of future noise research could be enhanced by establishing project priorities and linking projects to specific objectives. Currently, FAA's noise projects are not subject to such priority setting.

Current Noise Research

FAA's fiscal year 1990 budget for research, engineering, and development (RE&D) is approximately $170 million. About $2 million of this amount is for environmental research, of which about $1.5 million is committed to aircraft noise research. Figure 1 shows the relative funding levels in FAA's fiscal year 1990 RE&D budget for its research activities or programs. As can be seen in figure 1 below, funding for environmental research ranks the lowest among all activities and programs.

37-095 O - 91 -- 3

FIGURE 1: FISCAL YEAR 1990 RE&D APPROPRIATIONS BY ACTIVITY/PROGRAM

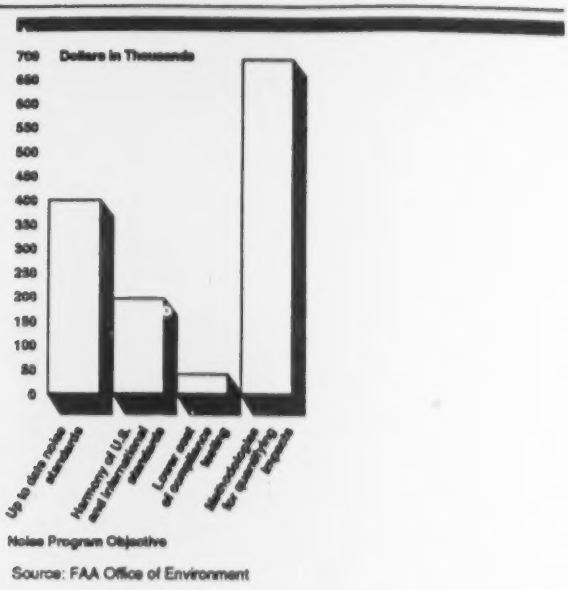


Note: Noise research is conducted under the Environment Program. In FY90, noise research and information processing shared with emissions research was funded at about $ 1.5 million.

Source: FAA Fiscal Year 1991 Budget in Brief

FAA has several projects currently underway in aircraft noise research. Projects fall into four broad areas, according to FAA program officials responsible for managing aircraft noise mitigation research. These are (1) keeping noise standards up-to-date, (2) keeping U.S. and international noise certification standards in harmony, (3) lowering the cost of compliance testing, and (4) developing methodologies for quantifying the impact of aircraft noise. Current projects include, for example, studies on the impact of high altitude noise, the financial benefits of noise reduction at airports, and the adequacy of Ldn for determining the impact of aircraft noise on a community. As shown in figure 2 below, approximately half of the noise research funding in fiscal year 1990 was allocated for developing methodologies for quantifying the impact of noise.

FIGURE 2: FISCAL YEAR 1990 NOISE FUNDING DISTRIBUTION BY PROGRAM OBJECTIVE



Source: FAA Office of Environment

Future Research Plans

This Subcommittee has recommended increasing the funding of environmental projects--which includes aircraft noise--from about $2 million in fiscal year 1990, to $4.4 million in fiscal year 1991, and to $5.4 million in fiscal year 1992. FAA program officials told us that they would undertake several initiatives if additional funding was provided. For instance, they would contribute funding to the National Aeronautics and Space Administration's (NASA) research in aircraft noise. While FAA focuses its research activities on the impact of aircraft noise on communities and how to minimize it, NASA's research aims to assess the feasibility of reducing noise by developing new aircraft technology, such as quieter engines and airframes with higher lift

capabilities. FAA officials believe that an annual $1-million contribution will enhance FAA's ability to influence NASA's program priorities. Other research initiatives program officials identified included developing new training techniques for improving the way FAA staff deal with the public on noise issues and enhancing planning tools, such as a data base on airport noise mitigation measures.

Research Priorities

In April 1989 testimony before this Subcommittee on FAA's overall research and development program, we stressed the importance of setting project priorities. We said that FAA had not established priorities for its fiscal year 1990 research budget.[6] Without priorities, projects could not be distinguished in importance. As a result, there was no assurance that scarce resources were effectively allocated.

In our opinion, the Subcommittee's proposal for increasing funding of environmental research by $2.4 million in fiscal year 1991 highlights the need for FAA to develop a plan which (1) establishes project priorities and (2) links these projects to specific objectives that contribute to reducing community exposure to aircraft noise. With such a plan, the benefits of an airport noise mitigation data base, for example, could be weighed against other noise research activities, such as new air traffic control techniques to permit quieter flight profiles.

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In summary, reducing aircraft noise in the future will require federal guidance and a focused research program. In the short-

[6] FAA Research, Engineering, and Development Issues (GAO/T-RCED-89-21, Apr. 12, 1989).

term, a national aircraft noise policy must be formulated that balances community noise concerns with the air transportation system's responsiveness to the travelling public. In the long-term, FAA's noise research could be more effective if FAA established priorities among projects and linked these projects to specific objectives.

That concludes our statement, Mr. Chairman. We will be pleased to respond to any questions that you or members of the Subcommittee may have at this time.

Mr. TORRICELLI. Thank you, Mr. Mead.

Mr. Mead, based on what factors have you come to the judgment that banning Stage 2 aircraft is feasible? What enters into that calculation?

Mr. MEAD. We examined four cost studies done—one was done by FAA; another was done by Avmark, Incorporated; another was done by the LCC Corporation for the cargo industry; and another was done by American Airlines. We examined each of these studies and came up with the cost estimate. We also supplemented that by interviewing all the airline manufacturers and the airlines.

Mr. TORRICELLI. And you are convinced that the capacity exists to do the replacement manufacturing in spite of the enormous backorders for aircraft?

Mr. MEAD. According to the manufacturers we spoke with. We spoke to manufacturers representing about 98 percent of production capacity in this country, and they believe that it is, despite the backlog.

The important point they stressed, Mr. Chairman, is that they can't be told of this obligation at the last minute. They believe they need 10 years advance time.

Mr. TORRICELLI. Dr. Rosen, in your testimony—I'm not certain whether it was in your oral testimony, but I know it's in your prepared remarks—you spoke of the possibility to design changes of the fuselage and/or engines, with up to 50 percent reductions in overall perceived noise? Is that indeed your conclusion?

Dr. ROSEN. I think 50 percent is the right number.

Mr. TORRICELLI. Fifty percent off a Stage 3 aircraft?

Dr. ROSEN. We think that it's possible to reduce the noise by advanced technology over some period of time—I mean, it's not something we do immediately—about 10 decibels, and that's a factor of 2.

Mr. TORRICELLI. With significant contributions coming from both fuselage and engines, or one proportionately more than the other?

Dr. ROSEN. It's more than just the fuselage. It's the engine, it's the entire airframe, as well as operational procedures. One of the—

Mr. TORRICELLI. So operational procedures are a part of the 10 decibels reduction?

Dr. ROSEN. That's right.

Mr. TORRICELLI. How large a factor is that in the doubling?

Dr. ROSEN. It's approximately 2 to 3 decibels.

Mr. TORRICELLI. Is this a technology question of better and more precise handling of the aircraft, or just experience in how to reduce noise?

Dr. ROSEN. Mr. Chairman, it has to do basically with being able to have a more efficient high-lift wing system that would allow the aircraft to climb out a lot quicker.

Mr. TORRICELLI. So it is a design question, then, in each of these elements?

Dr. ROSEN. That's right.

In addition to the design, you really do need to work out the operational details, as well. It's one thing to have the capability, but it's something else to integrate it into the airspace system, and FAA would have to get involved in that.

Mr. TORRICELLI. I understand. If we do—and this is for any of you--if we do little or nothing on the Federal side for noise reduction, which is approximately what we're now doing, through incremental improvements are we approaching a point where a Stage 4 designation would be appropriate, just through the regular march of technology?

Mr. MCDANIEL. From our standpoint, Mr. Chairman, we wouldn't see that happening through incremental improvements. We don't believe—

Mr. TORRICELLI. You do not foresee it based on the current course of events?

Mr. MCDANIEL. No, sir.

Mr. MEAD. Sir, I might add to or supplement what Senator Lautenberg pointed out about the need for possibly some inducements.

When we interviewed the airline manufacturers, they were extremely skeptical about the likelihood of significant technological noise reduction beyond what Stage 3 offers. That, I presume, is because they don't have a great deal of work underway trying to reduce noise to that level.

Mr. TORRICELLI. As you looked at the marketplace do you have some judgment, Mr. Mead, as you looked at alternatives that Mr. McMillen was suggesting before, from investment tax credits to simply manipulating the marketplace by allowing stricter landing procedures in some local airports, thereby giving you incentive for planes at different levels of technology—do you have a view about the appropriate way to move the market?

Mr. MEAD. I think, based on our work, that the airlines are expecting, independent of a tax credit or like incentive, some sort of phase-out ban. I think it is dangerous to rely on locally-imposed noise restrictions as a way of solving the noise problem; not just because it might result in dumping of noise on other communities, but because it is costly to an airline industry that operates at the margin, at least with a substantial number of carriers, and the news in the last month or two hasn't been encouraging for any of them.

Mr. TORRICELLI. Dr. Rosen, is NASA the appropriate place for increased efforts at airframe and engine Government design improvement work?

Dr. ROSEN. I think I was with you, Mr. Chairman, until you said "design improvement work." I think it's the right place for the technology development. I think that's, in fact, their charter and that's what we ought to be doing. We have been doing that for some time.

Mr. TORRICELLI. I don't mean designing aircraft. I mean understanding better the relationship between noise and wing and fuselage design.

Dr. ROSEN. Yes, sir, I—

Mr. TORRICELLI. Do you still not concur?

Dr. ROSEN. Oh, I do. I absolutely do concur.

Mr. TORRICELLI. You do. So on that question and on the engine question, you do believe that NASA is the appropriate place?

Dr. ROSEN. Yes, sir. In fact, we have—I do have to quarrel a little bit with your statement earlier, of little or no work going on in

noise reduction. We have about a $20 million program and plan to grow that to $25 million in 1991. I think that's—

Mr. TORRICELLI. You don't have a $20 million program going into engine and fuselage work?

Dr. ROSEN. We have a $20 million to $25 million program working the areas that I mentioned earlier.

Mr. TORRICELLI. Working on engine improvement—

Dr. ROSEN. Engine improvement—

Mr. TORRICELLI.—and wing and fuselage design?

Dr. ROSEN. That's right.

Mr. TORRICELLI. That's certainly not consistent with what I've heard in the past. You're doing that in a combination of Government laboratories and in outside work?

Dr. ROSEN. Yes.

Mr. TORRICELLI. Mostly supersonic work?

Dr. ROSEN. A lot of that, yes, does have to—

Mr. TORRICELLI. Dr. Rosen, that comes extremely close to being very misleading. You know that our interest in what can be done in reducing supersonic noise has little to no impact on the focus of our concerns.

What is the scale of your efforts that you are doing for commercial aviation that is the focus of our interest?

Dr. ROSEN. In 1990, the number is probably about $12 million to $13 million.

Mr. TORRICELLI. The points that I raised earlier on tiltrotor as a possible answer, do you concur, any of you, with that judgment that, given its shortness and proximity to the ground, that it's an answer?

Dr. ROSEN. I think the tiltrotor is a part of the answer. In fact, when you held the tiltrotor hearing earlier this summer, that was one of your questions and one of the answers we gave.

I think the tiltrotor is a very interesting vehicle. Its operational aspects afford reduced noise, as well as—

Mr. TORRICELLI. Simply because of the way it's operating. So if there were no improvements in its technology for noise reduction, and the aircraft that we see now is the aircraft we bought then, it still would have improvement simply because of the way it operates. Is that your conclusion?

Dr. ROSEN. That's right.

Mr. TORRICELLI. Okay. But I take it that it is also your conclusion that there are real possibilities for reducing its noise, even as it now stands? Or is that not your conclusion? I thought I heard somebody say that.

Dr. ROSEN. I think that the tiltrotor is intrinsically more quiet, and if it is operated in an efficient manner with large glide slopes and things like that, it will be a quieter aircraft than either a commercial jet or a propeller—

Mr. TORRICELLI. I thought you testified before, though, that work was being done in otherwise reducing rotor aircraft noise?

Dr. ROSEN. That's right.

Mr. TORRICELLI. So you believe that in addition to its current advantages, it can further be advanced—

Dr. ROSEN. That's right.

Mr. TORRICELLI.—through technology?

Finally, where—perhaps, Mr. McDaniel, you're the best one to answer this—where is the principal opposition coming from in the movement to phase out Stage 2 aircraft? Identify for us the resistance.

Mr. MCDANIEL. I don't know, Mr. Chairman, that I would characterize it as "resistance" to the phasing-out of Stage 2 aircraft. I think there are genuine concerns on the part of a number of carriers in both the passenger and air freight industries that any phase-out be done in an economically responsible manner which does not threaten the competitiveness of the system, or minimizes the impact on the competitiveness of the system.

Mr. TORRICELLI. According to Mr. Mead, though, he believes that the passenger carriers themselves are beginning to factor this into their plans. Is that not as true with the cargo handlers?

Mr. MCDANIEL. No, I think the cargo handlers as well anticipate movement toward Stage 3 aircraft. Some carriers have already made a commitment to achieve an all-Stage 3 fleet. Others have yet to make that commitment.

The other concerns, I believe, are that the carriers be allowed to make a sufficient return—that is, to be able to operate their aircraft with sufficient certainty throughout the system so that they can generate the revenues necessary to acquire the quieter aircraft in their fleet. Completing the phase-out of Stage 1 in 1986, and then beginning the phase-out of Stage 2 shortly thereafter, creates a fairly short economic life for the aircraft and may threaten their viability. There being no Stage 4 on the horizon, I think the carriers are somewhat concerned that they not be asked to contribute again in the next 10 years if they phase out Stage 3.

I think those are the concerns. I think they are real concerns, but I don't think that there is what I would characterize as "resistance." It's only a matter of how best to do it.

Mr. TORRICELLI. Mr. McDaniel, permit me a final, parochial point, if I could.

I know that the FAA has taken some pride in its working out flight patterns in Seattle to minimize the noise difficulties, which I take it have met with some considerable success. Perhaps you could explain to me why all of our lives have been so difficult and that that was not done in the New York area.

Mr. MCDANIEL. I believe, Mr. Chairman, that we were genuinely surprised by the reaction to the changes that we made in New York with regard to noise. I think that we learned a lesson as a result of that in the way that we approach such changes in the future.

Earlier this month we issued a notice to folks who are making air traffic changes above 3,000 feet, suggesting guidelines to be used when such changes are made to anticipate potential community reaction and take that into account in the planning of the routes themselves.

Mr. TORRICELLI. Is our judgment on this committee, to have you do computer modeling in the future on noise impacts, in your judgment of value in this process?

Mr. MCDANIEL. Yes, sir.

Mr. TORRICELLI. Is it technically possible to the extent that we may believe it is?

Mr. McDANIEL. Yes, sir, and I believe that the tools that were developed, the Integrated Noise Model, as a result of research dollars provided by this committee, allow that assessment to be made. The guidance that we have provided to the field, in fact, is based on the conduct of the models, reducing the results of those models into simplified tables that can be applied in the field to gain a first-cut evaluation of what noise impact might be. If it seems to be significant, then we would do a more detailed computer analysis, using those tools that you spoke of.

So yes, that is very helpful to us.

Mr. TORRICELLI. Thank you, Mr. McDaniel.

Mr. Lewis?

Mr. LEWIS. Thank you, Mr. Chairman.

Mr. Mead, on page 4 of your testimony you point out that your work has shown that 3 of 140 airports surveyed currently have local bans on the use of Stage 2 aircraft. It goes further to say that "by the year 2000, 77 airports are likely to ban Stage 2 operations."

Did you look into this further to see why there are so few airports banning Stage 2 operation?

Mr. MEAD. Why there are so few?

Mr. LEWIS. Yes.

Mr. MEAD. I think there was a move for a time that the Federal Government would do something. The Federal Government did nothing, and—

Mr. LEWIS. That's not unusual.

Mr. MEAD.—some communities, out of frustration, started imposing outright bans. Other communities have imposed nighttime curfews, or have imposed a curfew that says no Stage 2s, only Stage 3s. Los Angeles only recently put its foot in the water and said, "Well, we're going to ban them, too." Of course, this is going to have an exponential carryover to other areas of the country that do not have comparable noise restrictions.

I would like to come back to a question that the Chairman asked which I think is partly in response to one that you have posed, as well. Why, then, if the airlines are anticipating a phase-out, where is the resistance coming from? The fact is, there is resistance, and it is resistance in the nature of a concern that localities will still be free to impose restrictions on the airlines, noise restrictions, even if the Federal Government imposes the phase-out ban. For example, say the Federal Government tells the airlines that by X year, 15 percent of your fleet must be Stage 3. Would it be permissible for an airport to say, "There will be no Stage 2 aircraft at this airport, period"? The airlines are fearful that that would occur. Would it be permissible for an airport, in the presence of a Federal phase-in schedule, to say, "We'll only accept so many Stage 2 operations today," or, "At nighttime, we will only allow Stage 3"? So they are looking for a balance.

Mr. LEWIS. Well, I think that what you say is probably true, but I can understand the people who are living around airports and subject to the noise today—and you answered the question right up front when you said that the Government did nothing to eliminate or restrict the use of Stage 2 aircraft within a certain time frame, that would at least show the surrounding communities that have

the problem with noise that something is being done. What they're looking at today is that nothing is being done, just as you point out.

I would like to revert over to Mr. McDaniel and further follow what the Chairman said about the Seattle airport. Here at Washington National we do a snake dance down the Potomac when we land. From your perspective, how well has that worked?

Mr. MCDANIEL. I think it has had some beneficial impact, Congressman.

Mr. LEWIS. You don't know? You don't know whether it has?

Mr. MCDANIEL. It has had some beneficial impact. By following the river route, it does avoid some noise exposure to communities that otherwise might be overflown.

We have, however—and you would understand that, I think, being a pilot yourself—concerns that we not have at each individual airport tailored procedures to that airport which require different maneuvers at different airports. We are in the process now, our Flight Standards Office, of evaluating noise abatement departure procedures and looking at ways that we might better standardize those.

So while I think there are benefits resulting from the procedure, I think there are also limitations to how tailored a procedure can be made for individual locations.

Mr. LEWIS. Coming into Washington National I've noticed a number of times, particularly from the northwest, there doesn't appear to be any minimum restrictions as far as a glide slope. They can be coming in—say, crossing the 14th Street Bridge, they could be crossing the 14th Street Bridge at 250 feet or pretty close to 800 feet. Is there any reason for that deviation? Is that because of spacing or something like that?

Mr. MCDANIEL. I don't know the answer to that question, Congressman.

Mr. LEWIS. The reason I'm raising the question is because further out, they are much lower than they would normally be to come into that area, so therefore the noise level would be higher. I was just wondering if there was any minimum glide slope that had to be adhered to while they are coming down the Potomac.

Mr. MCDANIEL. Well, there is a minimum glide slope. I do not know what that is at the time they cross the 14th Street Bridge, but yes, there is a minimum level that they are expected to be at at various locations along the way.

Mr. LEWIS. What is FAA's priority right now in noise reduction, as far as research and development?

Mr. MCDANIEL. Our priority is two-fold. One is the continued improvement of the tools that we use in order to evaluate noise impacts around airports. These are the kind of modeling tools that the Chairman referred to, so that we are better able to assess how changes in aircraft type and procedures and routing will impact the communities so that we can plan better and the airports can plan better in connection with that.

Secondly, we are concerned with being certain that the certification and technical standards used for certification of aircraft are updated and current in a way which minimizes the cost on the manufacturers in order to show compliance. For example, in lieu of testing each set of airframes and engines together, we have devel-

oped modeling procedures to allow what we call the "family plan" in which various engines and airframes can be evaluated statically without testing dynamically, in order to assure compliance with the technically most feasible noise reduction measures.

That is the focus of the efforts that we have had.

Mr. LEWIS. I see.

In the 1960s and 1970s we had quite an accelerated R&D program for noise reduction. A lot of this did come out, as the Chairman pointed out, with the SST back during that period.

Do you feel that we still have the same emphasis and acceleration in the R&D to reduce noise that we had in the 1960s and 1970s?

Mr. MCDANIEL. No, I do not, Mr. Chairman—

Mr. LEWIS. No, this is the Chairman over here.

Mr. MCDANIEL. Sorry. Congressman.

Mr. LEWIS. Lest you forget. Don't ever forget.

[Laughter.]

Mr. TORRICELLI. It's dangerous around this place to ever call a Republican "Mr. Chairman."

[Laughter.]

Mr. MCDANIEL. Excuse me, Mr. Lewis and Mr. Chairman.

No, I don't think the proper emphasis is being placed on future noise technology, and that's one of the reasons that Administrator Busey and Administrator Truly of NASA have signed an agreement for additional focused research on subsonic aircraft. I think that's important, and I think that additional emphasis in that area is required.

Mr. LEWIS. And you feel that both Admirals have this at the top of the priority list in the R&D area?

Mr. MCDANIEL. If not at the top, near the top, yes, sir.

Mr. LEWIS. How do you feel that the FAA is working with the industry in finding new ways for noise reduction, and what are the plans for the future to do that?

Mr. MCDANIEL. I would cite two things that we are doing. One is that there have been a series of advisory committees in various capacities. One I referred to in my testimony, which is the research on noise abatement and reduction technology. We rely very heavily on industry and the experts from industry to point out to us areas where there are potentially major improvements that might be realized. We have a group that we work with in terms of noise abatement procedures themselves. Those are the operational characteristics of existing aircraft at airports, in which we rely very heavily on the pilots in order to evaluate the safety of those procedures, as well as the expertise of the airframe and engine manufacturers as to the capabilities of the aircraft being used.

If I may, we work closely with the industry in evaluating ideas which might lead to a potential direction to be followed with regard to short-term noise abatement options, things such as land use control such as Mr. Mead referred to, and the phase-out of Stage 2 aircraft. They have been laboring hard to find an area where there might be compromise in which all these can be brought together.

So I think that in those three distinctive areas we work very carefully and very closely with the industry.

Mr. LEWIS. Dr. Rosen, you know, it's interesting; we hear a lot of noise problems and complaints about noise around airports, but when the Shuttle takes off from Cape Kennedy it is the loudest thing you ever hear, and everybody cheers and you hear no complaints about the noise.

Dr. ROSEN. We're really looking forward to hearing that again very soon.

Mr. LEWIS. We sure would like for that to happen.

In response to the question I asked Mr. McDaniel, do you feel that NASA is moving ahead with areas of noise research? Do you still have the prop/fan program moving? How do you feel the cooperation is with NASA, the industry, and FAA? I'm sure you're going to say pretty good.

Dr. ROSEN. Mr. Lewis, we participated in the discussion that my colleague talked about a minute ago between the two Admirals. It is clear that there is an increased emphasis in our program, an activity toward developing a program for subsonic noise reduction. We have ongoing activities.

You know, the research activity is kind of a funny thing. You get to a plateau and for a while you run out of ideas, and then after a while somebody else over here or over there comes up with a new idea, and then you get some ideas of how you could put a lot together and you could make your next event.

In the 1970s we made significant progress, I think, with respect to jet noise, and we developed a lot of understanding of how you can reduce one of the aspects of aircraft noise, jet noise. At least for subsonic aircraft, I think we have that pretty much in hand.

We also had some ideas on what to do for the fan noise, but it's a long time from a couple of people in a laboratory having some ideas to being able to come up with something that is going to impact an engine. I think that over the past few years with the turboprop program, we've developed the tools and capabilities for fans and propellers to understand the noise generation mechanisms, and in fact, how to reduce the noise.

So we are really, I think, poised on the next step, which is not just the jet noise but the fan noise. I think we are prepared to accelerate our research, as I said in my opening statement, with respect to subsonic noise, to provide the technology for this significant reduction in noise. That wasn't possible a couple of years ago, and that's frankly why the funding level was as low as it was. I think the combination of increased emphasis and increased technical foundation will allow us to make the breakthroughs that we talked about.

Mr. LEWIS. A question for both of you: do you have set up within NASA, and do you have set up within FAA, a particular team that their specific job is to work on noise reduction?

Dr. ROSEN. With respect to NASA, we don't have a focused, set aside group of people, a project on noise. However, we do have some people right now who are looking seriously at putting together a program. They have other duties. When we get that program in place, then we will have a more project-oriented activity where the overall program will be set aside, with those people having that activity.

Having said that, let me also point out that at our research centers we do have experts in noise, and that's all they do, and they're in branches and divisions. So at the various research centers we do have what you say. Across NASA, that doesn't exist today. But as I said, I think that with the noise program that we're looking at we will have such an activity.

Mr. LEWIS. How about the FAA, Mr. McDaniel?

Mr. MCDANIEL. Mr. Lewis, the answer to the question is yes, we do have. It's located in the Office of Environment and Energy. They have the responsibility for defining the noise development objectives and carrying out the oversight of the research programs.

Mr. LEWIS. Thank you, gentlemen.

Thank you, Mr. Chairman.

Mr. TORRICELLI. Thank you, Mr. Lewis.

Mr. McMillen?

Mr. MCMILLEN. Thank you very much, Mr. Chairman. It's been a very interesting hearing. I have a number of questions that I would like to ask both Mr. McDaniel and Mr. Mead.

Mr. Mead, you referenced the idea that currently 5 million people are impacted in noise areas greater than 65 Ldn, and that FAA estimates that if we get rid of all Stage 2 and go to Stage 3 tomorrow, it would be down to 1 million. That means that you would have to switch 40 percent of the fleet over to Stage 3.

My question has to do—that obviously would have a tremendous impact on noise outside that 65 contour, as well.

My question is, when you are look at priorities, how we're spending the money, obviously the idea here is that hitting the source of aircraft noise is much more efficient. Everybody agrees with that, the mitigation efforts, soundproofing, homes, schools, and the like. You make that point in your testimony. But when you look at how the FAA prioritizes this—and I must say, Mr. McDaniel, I am very pleased that you have established a working group and that you are beginning to look at single event, and so forth—but I still don't believe that this issue is a priority. In the decade from 1982, we're going to spend a billion dollars—a billion dollars—primarily on soundproofing and all those kinds of things. What would have happened—this is a question that gets back to the ITC issue and incentivizing airlines to move to Stage 3 quickly—if we had taken that money and incentivized them to move to Stage 3 aircraft immediately? We would have gotten down to a million people impacted instead of 5 million people. It seems to me that we have a better near-term possibility of doing something for people if we take that strategy instead of the strategy we're doing right now, which is going along the course of mitigation and not doing enough aggressively to move this Stage 3 issue along.

Comments?

Mr. MEAD. Yes. I'd like to preface my response to your question by saying that I think that in the 1990s in the field of aviation we will be faced by two central issues. One will be capacity, and the second will be noise reduction.

Perhaps what you say is so, that had that money been spent, we would be down to the 1.1 million. But certainly always, even when we go to all Stage 3 aircraft, the areas where there are overflights will continue to be impacted. Say hypothetically that Chicago gets

the extra runway that has been so much in the news of late, and all the aircraft are Stage 3. But that new runway will have more aircraft. It will still be noisy to some people. So we will always need, I think, the mitigation program.

But your general point is correct, I think, that if you can technologically reduce the noise level of the 4,000 planes in our civil fleet, well, certainly that's a better investment —

Mr. MCMILLEN. Let me reframe it. ITCs for hushkitting and reengining Stage 3—this is not going to imperil the airlines to, you know, forego safety and other concerns because of financial considerations. What our priorities right now to me are, we're putting 100 percent into noise mitigation and we're doing not a lot in the area of movement toward Stage 3. Is that correct?

Mr. MEAD. No, not exactly, sir.

Mr. MCMILLEN. I'm talking about from our Federal policy in that regard.

Mr. MEAD. All new airplanes—post-1977, I believe— are Stage 3 planes. The Stage 2s left in the fleet were manufactured before that date. So that is happening. And our analysis of what the different airlines are doing—

Mr. MCMILLEN. Let me reframe it. Dollars, Federal dollars are committed.

Mr. MEAD. No. That's correct.

Mr. MCMILLEN. What I'm saying is that the Federal Government speaks with its wallet. Our wallet right now is entirely in the mitigation area, not in dealing with the aircraft force issue. That's all I was trying to make, that point.

It seems to me—I'm not saying, abandon mitigation. Of course there will be people impacted. What I am saying is that we need to balance that out and to look at ways to incentivize Stage 3. That was where I was coming down on that, on that line of questioning.

Mr. MEAD. I suppose an issue I will have to come to grips with will be whether the Federal Government would directly finance American Airlines' retrofitting of its engines, or would adjudge that American Airlines was a financially healthy airline, but some other was not as well off and that we would choose to finance them, if it was that type of financing that you had in mind, sir.

Mr. MCMILLEN. Well, something out of the Trust Fund. It's just a legitimate question, I think, that makes me think about our priorities.

The second issue I would like to address has to do with the independent auditor at the FAA.

If a community has a problem with an airport, where is the adjudication process? If they really want to know and deal with this bureaucratic maze about operational procedures, the glide slopes that are optimum for minimizing noise and making sure that safety and all other factors are taken into account, whether all these things are done, if I am the community and I have concern whether BWI is doing the best job, what do I do? What do I do? Do I go to the FAA? What are you going to tell me?

Mr. MCDANIEL. Like the noise issue generally, Congressman, the responsibilities are divided between the Federal Government and the airport authority and, in some cases, the communities which surround the airport.

We do have, in the case of air traffic control procedures, a central contact point for each airport, which is the tower manager for the airport. In many cases they have a contact with regard to noise concerns. Airports themselves— and I think in the case of BWI, they do—have also a department which is concerned with noise.

Mr. McMILLEN. At the airport?

Mr. McDANIEL. At the airport. Yes, sir.

Mr. McMILLEN. That's what I'm getting at. See, if I'm a community and I have to go to the airport to find out whether they're managing noise correctly, it's the fox guarding the chicken coop. I think they have to be able to have some assurance that they can go to the FAA. You're going to come out there and say, "No, they're not doing it right. There are other airports around the country using different glide approaches," and all the rest and all the technical issues that I don't know. It seems to me there ought to be some sort of independent auditor that the communities can go to to make sure that their concerns are taken care of.

Mr. McDANIEL. One of the things that we encourage very strongly is that airports take advantage of the Part 150 noise planning process which brings all of those players into a common forum in which divergent views—in fact, they develop divergent views—about the best thing to do can be ironed out with respect to that individual location. An independent auditor passing judgment on whether or not that kind of dynamic process is effective in reaching a solution, I'm not certain would add much if the community in fact entered into that process.

Mr. McMILLEN. Let me ask the question differently. Have you ever gone to an airport and sat down and analyzed the noise abatement procedures of an airport in this country and said whether they were doing a good job, a bad job, excellent job? Has the FAA ever done that?

Mr. McDANIEL. Not to my knowledge.

Mr. McMILLEN. Should you be doing that?

Mr. McDANIEL. As we make air traffic changes, we should be more conscious of the potential adverse environmental impacts.

Mr. McMILLEN. How about going out to BWI and starting there, giving us an idea whether they're doing the right things? I have confidence in the management of the airport, but I don't know. I can't judge it. They're coming to their Congressman to make those judgments, and I have no idea. I'm the wrong one. You have the expertise to do that, and I suggest that you make this a priority. You give those communities—it is a partnership. These communities think that these things are being railroaded over them.

This problem is going to grow and grow and grow and grow. I think it is incumbent upon the FAA to begin to offer communities that kind of independence.

Mr. McDANIEL. I think our work on the Expanded East Coast Plan would support that view—not necessarily the view of an independent auditor. I don't know exactly what the mechanism would be. But clearly, with the move to capacity increases in growth and some of the massive airspace configuration changes that have occurred and will occur, FAA needs to have as a priority, as a mindset, as part of its value system, noise reduction. And I don't know exactly what the vehicle would be, sir.

Mr. MCMILLEN. But it's more than what's being done today?
Mr. MCDANIEL. Yes.
Mr. MCMILLEN. All right.
Mr. TORRICELLI. Thank you, Mr. McMillen.
Let me ask a question before you gentlemen leave, if I could.
You mentioned before, Dr. Rosen, the possibility of a 10- decibel increase—
Dr. ROSEN. A reduction.
Mr. TORRICELLI. Didn't I say increase?
Dr. ROSEN. I thought you said increase.
Mr. TORRICELLI. No. Tension was decreased.
— a 10-decibel decrease in overall noise levels of aircraft, reducing by half. Does that, gentlemen, in anyone's view, in and of itself if that is achieved, justify a Stage 4 aircraft?
Mr. McDaniel?
Dr. ROSEN. I'm really not the right person to say.
Mr. TORRICELLI. I addressed it generally.
Mr. McDaniel?
Mr. MCDANIEL. If that were a proven technology, available, then I think that's the order of magnitude improvement which would justify movement toward a Stage 4, yes, sir.
Mr. TORRICELLI. Is there anything this side of that magnitude of improvement that justifies Stage 4?
Mr. MCDANIEL. That would depend on the economics of what that would cost, I believe.
Mr. TORRICELLI. So potentially yes, if it were economically viable?
Mr. MCDANIEL. Yes. There is the Noise Control Act which requires the FAA to make a Noise Control Act finding of new technology that in fact the most technically feasible and economically reasonable technology is imported to reduce noise.
Mr. TORRICELLI. I'm trying to get a concept of just how far it is we need to go in scientific terms, absent—I recognize that you need the economics of it—before you reach that level.
Mr. MCDANIEL. If you look at Stage 1 to Stage 2 to Stage 3, roughly there is an order of magnitude improvement moving to each stage—another 10 decibel reduction would be another order of magnitude improvement.
Mr. TORRICELLI. That would be a similar movement?
Mr. MCDANIEL. Yes.
Mr. TORRICELLI. Gentlemen, thank you very much for your testimony today.
Mr. TORRICELLI. For our second panel, please, Daniel Webb, Engine Program Manager, Pratt & Whitney; Roger Fleming, Senior Vice-President, Technical Development and Planning, Air Transport Association; and Richard Klenk, Assistant Director of Aviation, Port Authority of New Jersey and New York.
Gentlemen, welcome. We welcome your testimony today and appreciate your patience in remaining through the hearing, but we are very grateful for your time and attention today.
Mr. Klenk, I'm particularly grateful that it appears that you've changed the name of the Port Authority to the Port Authority of New Jersey and New York rather than the other way around. It is appropriate and noted.

We will, of course, take each of your testimonies at length in the record so that we have sufficient time for questions. We would, of course, hope that you would abbreviate them, give us whatever summaries you think appropriate so that we have some time remaining when it concludes.

Mr. Webb, we can certainly begin with you. Mr. Webb, are you from Florida or are you from Connecticut?

Mr. WEBB. I'm from Connecticut.

Mr. TORRICELLI. Given the quality reputation that Pratt & Whitney has in Florida, it's a wonder that all of you do not move to West Palm Beach, represented by Mr. Lewis, but since you persist in remaining in Connecticut we understand that, and we would appreciate your testimony.

STATEMENT OF DANIEL E. WEBB, JT8D ENGINE PROGRAM MANAGER, PRATT & WHITNEY

Mr. WEBB. Thank you very much. I have submitted my written testimony, which I feel is quite succinct. I will try to keep my oral testimony equally succinct.

Mr. Chairman and members of the subcommittee, thank you for this opportunity to tell you about the efforts that Pratt & Whitney is making toward the reduction of noise made in today's fleet and our plans to minimize the environmental impact of future products. I am, as you have accurately stated, Dan Webb, the Program Manager for the JT8D Noise Reduction. I was asked to represent the company today because there are over 13,000 JT8D engines currently in service. As you will see, this engine is the focus of considerable company effort and resources in noise reduction, and that, in fact, is my job.

Very quickly, let me outline some basic points to put my remarks in perspective. Currently, aircraft noise standards are expressed, as we have heard today, in stages. Stage 2 requirements apply to new aircraft types produced after 1969. Stage 3 requirements apply to new aircraft types produced after 1978, and they are as much as 8 decibels quieter than the Stage 2 aircraft.

It is significant to note here that the last Stage 2 aircraft was produced in 1988, and is only a little more than two years old.

I am pleased to note that commercial transports currently in production meet Stage 3 noise requirements. These aircraft benefit from the evolutionary nature of our business, and developments such as the introduction of the high bypass ratio engines in the early 1970s and the development of acoustic treatment technology, as well as close attention to noise as a design parameter by both the aircraft and engine manufacturers.

Today, however, approximately 65 percent of airport departures by the commercial fleet are made by Stage 2 aircraft produced from 1963 to 1988. More than 3,800 of these aircraft were built, establishing the backbone of the world's air transportation system. Although this percentage, 65 percent, may fall relatively quickly due to the high production rates of new aircraft, the absolute number of flights by Stage 2 aircraft should remain steady as long as these aircraft are economical to operate and remain in service.

The decision to continue to operate these older aircraft or invest in new aircraft is a business decision that must be made by each operator.

Because of current as well as projected use of the Stage 2 fleet, we at Pratt & Whitney, along with our business associates, have been dedicating considerable amounts of our private resources—a total investment estimated to be well in excess of $100 million by completion—dedicating these resources toward a solution which allows the JT8D-powered Stage 2 fleet to achieve Stage 3 noise levels. Our goal is to achieve Stage 3 certification for all JT8D-powered aircraft models currently certified at Stage 2 by the end of next year, 1991. Many models will be certified in the interim period. When our goal is achieved, the products will be available to reduce the population of noise-impacted citizens by as much as 70 percent, from more than 3 million today to about 1 million.

If I can beg your indulgence to turn to the charts at the end of my presentation, the first chart is a footprint. This chart illustrates the reduction in a noise-impacted area for a typical Stage 2 aircraft fitted with Stage 3 noise reduction hardware. This chart is called the "noise footprint" or contour. As you can see, it shows a very significant decrease in area and is consistent with the reduction in population impacted.

I have another chart, which is the next page, which will illustrate the current noise situation. This chart shows how the Stage 2 fleet noise compares to that of newer aircraft, as well as how all aircraft models compare to the Stage 3 rule. In this case, we are looking at the sideline noise portion of the Stage 3 rule. As you can see—and my words here say "the blue-shaded areas"—the areas designated 737, 727, and DC-9 are the noisier Stage 2 aircraft, and the other areas below the line are the newer aircraft that meet Stage 3.

There are three key points to be gained from this chart.

The first is that the current Stage 2 fleet is noisier than even heavier aircraft.

The second is that because lighter aircraft are required to be quieter by the rule, bringing the Stage 2 fleet into Stage 3 compliance will make the fleet a good acoustic citizen.

The last, meeting the Stage 3 rule is a challenge for many current models. This rule is also a challenge to future products, as well.

Let me summarize the first portion of my statement by saying that Pratt & Whitney, together with our associates, is applying available technology to solve the major acoustic challenge for this decade. All aircraft in production meet Stage 3; JT8D-powered aircraft, still the majority of our commercial fleet, are targeted for certification by the end of next year as capable of meeting Stage 3. We are taking these steps with private investment and at private risk.

I might add that the FAA-funded research in the early 1970s on ejector noise reduction is a key part of our current technical strategy.

Now I would like to address the research in noise reduction for advanced products. Earlier I mentioned the acoustic breakthrough brought about by high bypass ratio engines of the 1970s. It was the

industry's ability to produce these products that led to the creation of the Stage 3 rule. No such other major technological breakthrough for acoustics is anticipated in the foreseeable future. Noise reduction is evolutionary, not revolutionary. That is not to say that noise reduction efforts are not in place. In fact, noise has become a competitive factor, and therefore plays a key role in the design of new engines.

Some important areas where efforts are ongoing are engine performance, aerodynamics, engine cycle selection, and noise reduction research. In engine design, success is determined through the proper balance of often conflicting parameters, such as noise, emissions, fuel efficiency, weight, cost, and performance. When the process is complete, inevitably the best product is the one that balances these competing factors. Prop Fan is a good example of how the best design from one standpoint—that is, fuel burn—is challenged, or can be challenged, by both noise and cost.

This doesn't mean that there's not a need for fundamental research for noise reduction. Indeed, we strongly support increased emphasis by FAA and NASA in noise reduction. These efforts could provide the research needed to investigate innovative, high-risk concepts that may offer potential for future noise reduction.

I would point out, however, that the results of such efforts will not be realized until well into the next century, perhaps 25 or 30 years from today, when they could be a significant part of the fleet.

We believe we are solving the most critical noise problem today, and for the decade, and are doing so with private funds. The help that the industry needs from Congress is to:

One, ensure that our significant efforts as manufacturers will not be wasted by changing the rules in the middle of the game—that is, changing noise standards after Pratt & Whitney and our associates have invested millions in research and equipment; and

Two, assure that aircraft owners and operators can invest in noise reduction and not waste their money because of changing the rules in the middle of the game; and

Last, to support NASA- and FAA-sponsored research toward noise reduction.

Thank you for your interest.

[The prepared statement of Mr. Webb follows:]

TESTIMONY

TO

THE SUBCOMMITTEE ON TRANSPORTATION, AVIATION & MATERIALS

COMMITTEE ON SCIENCE, SPACE AND TECHNOLOGY

U.S. HOUSE OF REPRESENTATIVES

SEPTEMBER 27, 1990

For Pratt & Whitney

Daniel E. Webb
Program Manager
JT8D Noise Reduction

SUBCOMMITTEE ON TRANSPORTATION, AVIATION & MATERIALS

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The decision to continue to operate these older aircraft or invest in new aircraft is a business decision that must be made by each operator.

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areas are the newer aircraft that meet Stage 3. There are three key points to be gained from this chart:

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- To assure aircraft owners and operators that investment in noise reduction will not be wasted by "changing the rules in the middle of the game".

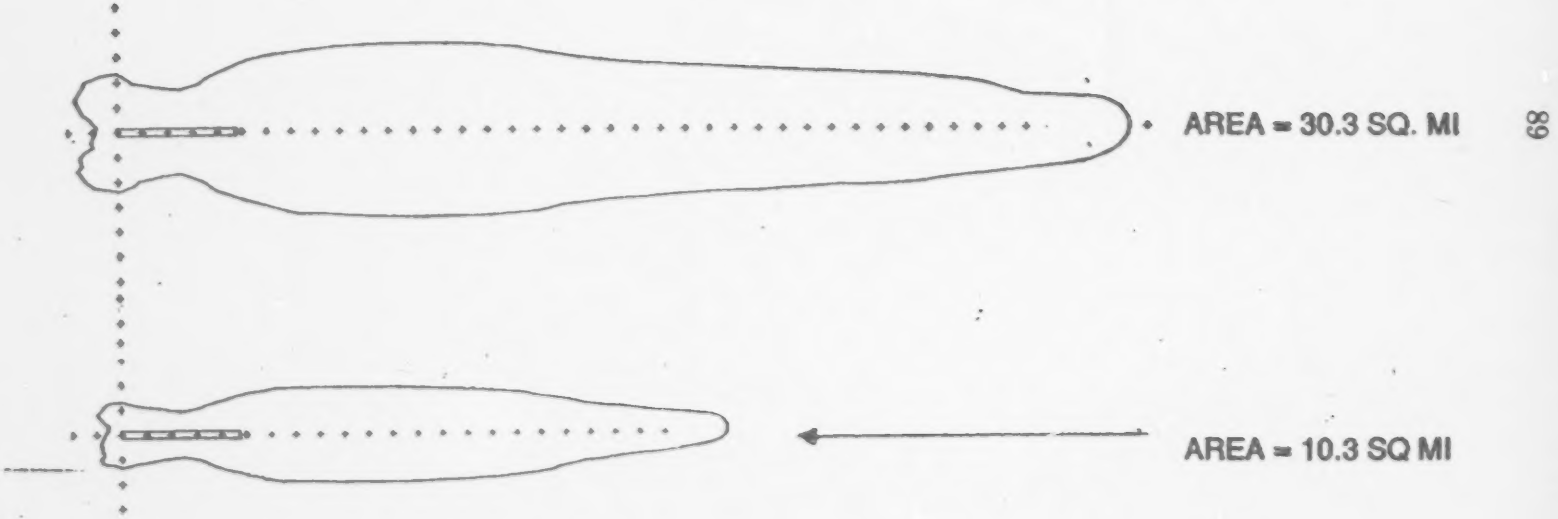
- Support NASA and FAA sponsored research toward noise reduction.

Thank you for your interest. I will be pleased to respond to any questions.

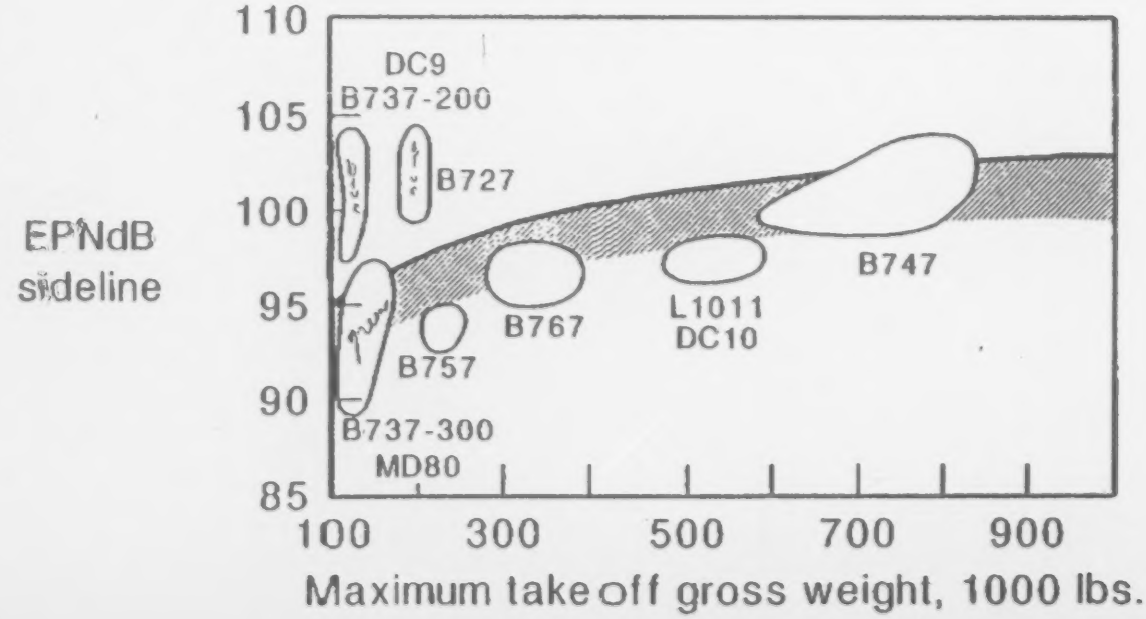
TYPICAL STAGE 2 AIRCRAFT CONVERSION

85 DB NOISE FOOTPRINT

SIDELINE NOISE REDUCED 7 DB



JET NOISE DOMINATES SIDELINE NOISE



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Mr. TORRICELLI. Thank you, Mr. Webb.
Mr. Fleming?

STATEMENT OF ROGER J. FLEMING, SENIOR VICE-PRESIDENT, TECHNICAL DEVELOPMENT AND PLANNING, AIR TRANSPORT ASSOCIATION

Mr. FLEMING. Thank you, Mr. Chairman. I appreciate the opportunity to appear before you this afternoon, and I would like to express our appreciation for the leadership exhibited by you and your colleagues.

As you have already heard from several witnesses, over the course of the past 30 years technology has brought aircraft noise levels down by well over 20 decibels, or approximately 50 percent in perceived noise reduction. The carriers have played their important role in this progression and today, as in the past, they focus intensively on aircraft noise characteristics in making decisions about which aircraft types to purchase.

However, as you have heard, this noise reduction curve is leveling off and there are, at the present time, no dramatic new technologies available on the horizon, at least in terms of certificated airplanes that one could place purchase orders for now. Therefore the challenge of noise reduction at this point is to incorporate the best available technology into the operating fleet, a challenge which we must consider not simply on terms of technological availability, which Mr. Webb has addressed, but also economic reasonability in the context of overall public policy.

Mr. Chairman, at the present time the U.S. air carrier fleet totals about 5,660 aircraft altogether. Our most recent survey indicates that about 41 percent of the jet-powered fleet meets Stage 3 noise standards. This leaves, however, about 2,310 older Stage 2 aircraft in the fleet. Those numbers are as of the end of 1989. The same U.S. airlines have, as of the end of 1989, 1,184 orders for new aircraft. Those are firm orders; they are all Stage 3 airplanes, with 1,469 options. The new airplane firm orders represent value of approximately $51.3 billion.

One of the witnesses referred earlier to the current increase in fuel costs. I believe it was Mr. Mead. To provide some context for those comments, at the end of July this year our average fuel price per gallon was $0.59. As of September 20th, it was $0.99, a $0.40 increase. A $0.40 increase in the price of fuel annualized represents a $6.5 billion increase in operating costs if that increase is sustained. Obviously, there is a potential for the increase to go up further.

The 2,310 older Stage 2 aircraft, then, are the problem that we must address. They are largely Boeing 727 and 737-200 and earlier models, and Douglas DC-9s. These airplanes continue to provide about 60 percent of our national air transportation services. Mr. Webb has told you about the progress being made in developing retrofit kits to quiet those JT8D-powered airplanes, and this represents very important progress, I think.

However, technology is only one piece of the puzzle, which remains to be solved. The fact is that the United States does not have a rational or a national approach to noise, and without a national

noise policy, the carriers must cope with a proliferation of uncoordinated, conflicting local restrictions being proposed by individual airport proprietors. I thought that Mr. Mead, in his response to several of the committee's questions, spoke very forthrightly with respect to the dilemma posed to airlines in dealing with those local noise restrictions. These restrictions have a serious negative impact on airport capacity, and they make rational planning by the airlines in terms of fleet needs very difficult indeed. And, as you've also heard, communities which impose such standards also fail to take into account the legitimate concerns of other communities, and Mr. Mead used the expression "dumping," which I thought was apt.

Everyone agrees that a 100 percent Stage 3 fleet should be the primary goal of our national noise policy. It must be recognized, however, that the transition is going to be a very difficult one and that it's going to take some period of time. No carrier can be expected to commit its financial resources to new retrofitted or re-engined aircraft unless the United States is willing to commit to a national noise policy which guarantees the viability of these aircraft throughout the Nation and throughout as reasonable economic lifetime for the aircraft operating in providing services to the public.

In our view a national noise policy is essential and it must incorporate, as a minimum, several factors which I have outlined in my paper and which I need not repeat at this point.

In conclusion, Mr. Chairman, noise remains in our view a key constraint on the full utilization of airport and air traffic control system capacity in the United States. We believe questions related to aircraft noise can be adequately, appropriately, and fairly managed through the judicious and financially-prudent application of technology.

Airlines strongly support continued research into means to incrementally reduce noise generated by aircraft, and airlines will invest in quieter aircraft as they become available. However, what is required—and what we're pledged to work to see put in place—is the necessary road map, which is the national noise policy that will enable us to bring that technology to fruition.

Thank you, Mr. Chairman.

[The prepared statement of Mr. Fleming follows:]

Statement of J. Roger Fleming
Senior Vice President, Technical Development
and Planning
Air Transport Association of America
Before the Committee on Science, Space
and Technology
Subcommittee on Transportation, Aviation,
and Materials
U.S. House of Representatives
September 27, 1990

Good morning Mr. Chairman, my name is J. Roger Fleming and I am Senior Vice President, Technical Development and Planning of the Air Transport Association of America, the trade organization which represents 19 United States air carriers along with two Canadian associate members. I appreciate the opportunity to testify before this Committee today.

Mr. Chairman, before I discuss the airline industry's perspective on "Technology for Aircraft Noise Reduction", I would like to acknowledge your capable leadership on the aircraft noise issue. As many of your colleagues know, Teterboro Airport, a vital reliever airport for the three New York area airports, is situated in your district. While this airport plays an important role in the Bergen County and New York metropolitan area economy, it is also the source of frustration of local residents disturbed by aircraft noise. Mr. Chairman, for years you have sought to identify and pursue a balance between the needs of the business community, as met through aviation, and the demands of some local residents. As recently as July 1990, you included language in the FAA's Research, Engineering and Development Reauthorization Bill calling for additional money in the FAA's Environmental budget to be spent for research into the development of new noise monitoring technologies, and noise metrics that will more accurately reflect the noise conditions around airports. Your Committee also directed the FAA to initiate research into computer noise models that can be used to predict the effects on local communities of changes in terminal and air traffic control procedures. The airline industry appreciates your determination to seek a balance between the public's need for air transportation and the public's desire for maintaining the

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environment, and we look forward to working with you and this Committee.

The thrust of today's hearing is to explore the role of technology for aircraft noise reduction. Over the course of the past 30 years, technology has brought aircraft noise levels down by well over 20 decibels from the early jet transports to today's large transports, powered by high bypass turbofan engines - with each 10 decibel reduction effectively cutting perceived noise by 50 percent. The carriers have played a major role in this progression and, today, as in the past, they focus intensively on aircraft noise characteristics in aircraft acquisition decisions.

The noise reduction curve, however, is now leveling off with no dramatic new technological improvements on the horizon. Today's new aircraft are about as quiet as they can be. Therefore, the challenge of noise reduction at this point is to incorporate the best existing technology into the operating fleet - a challenge which must consider not simply technological achievability, but also economic reasonablility in the context of overall public policy.

Mr. Chairman, as of December 1989 the United States air carriers operated some 3,915 jet powered aircraft. Our most recent survey indicates that some 41 percent of this fleet met Stage 3, noise standards. Those Stage 3 aircraft already in operation, along with orders in the pipeline, represent an investment by our members of over $100 billion in quiet technology. This leaves, however, some 2,310 older noiser aircraft in the fleet.

These older aircraft, largely Boeing 727's, Boeing 737's, and Douglas DC-9's, continue to provide nearly 60 percent of our national air transportation services. Progress is being made to develop the technology necessary to quiet these aircraft to meet Stage 3 standards - either through retrofitting modifications to existing engines or through the

actual reengining of the aircraft. While development challenges remain for certain aircraft models, it appears technically possible that all existing Stage 2 aircraft models can be modified to meet Stage 3 noise standards. However, it is not clear that retrofitting is an economically sound course of action for all aircraft models, or for all carriers. I would note here that one of the most successful efforts in retrofitting is being led by one of our member carriers - Federal Express.

However, technology is only one piece of a larger public policy puzzle which remains to be solved with regard to the noise issue. The fact is that the United States lacks a rational, national approach to noise. Without a national noise policy, the carriers must cope with a proliferation of uncoordinated, conflicting local restrictions being proposed by individual airport proprietors.

These local restrictions have a serious negative impact on airport capacity. Just as importantly, they make rational planning to meet public demands for transportation services extremely difficult. One airport may favor curfews, another noise budgets and yet another a demand for its version of a "fair share" of Stage 3 aircraft. None of these schemes, of course, take into account their impact in other communities - or on the national system. What we are ending up with is a de facto national policy that appears to have been designed by Rube Goldberg.

Everyone - industry, government and community - agrees that a 100 percent Stage 3 fleet should be a primary goal of a national noise policy. On behalf of the Air Transport Association member carriers, I can tell you that we agree with the goal of an all Stage 3 fleet. It must be recognized, however, that the transition will be an arduous one, and will entail significantly different and extraordinarily complex considerations for each carrier involved. No carrier can be expected to commit its limited financial resources to new,

retrofitted or reengined aircraft unless the United States is willing to commit to a national noise policy which guarantees the viability of these aircraft throughout the nation. Similar assurances are required, through the International Civil Aviation Organization, for aircraft engaged in international services.

Before determining whether to put $30 million to $140 million into a new aircraft, or $8 million into a reengining or $3 million into a retrofit, carriers must know to a certainty how they will be able to make that investment work. Concurrently, communities must know that they are being dealt with fairly and equitably in efforts to resolve legitimate noise impact concerns. To accomplish any of this, a national noise policy is essential. It must incorporate, at a minimum, recognition that:

- o Stage 3 represents now and, for the foreseeable future, the state-of-the-art so that operators can invest in these quieter airplanes without fear that they will later be whipsawed by communities wanting ever quieter airplanes without regard to the impact of their demands on the national transportation system;

- o Stage 3 airplanes must not be subject to use restrictions that limit their utility in providing service to the public.

- o Use restrictions affecting Stage 2 airplanes -- until they are modified to Stage III or removed from service -- should be subject to review and approval by the FAA to ensure safety, reasonableness and consistency with national policy.

- o The federal government must develop a program for effective land use planning and control around

airports, taking into consideration local government prerogatives;

In conclusion, Mr Chairman, I would like to thank you and the Committee for focusing your attention on the critical matter of aircraft noise. Noise remains, in our view, a key to constraint on the full utilization of airport capacity in the United States. We sincerely believe questions related to aircraft noise can be adequately, appropriately and fairly managed through the judicious and financially prudent application of technology. What is required, and what we are pledged to work to see put in place, is the necessary road map - a national noise policy - to bring that technology to optimal effect.

Mr. TORRICELLI. Thank you, Mr. Fleming.
Mr. Klenk?

STATEMENT OF RICHARD KLENK, ASSISTANT DIRECTOR OF AVIATION, PORT AUTHORITY OF NEW YORK AND NEW JERSEY

Mr. KLENK. Thank you, sir. We appreciate the opportunity to express our views on the issue of aircraft noise, and in particular on the research and development that should be pursued in the future to reduce the impact of aircraft operations upon the communities surrounding major United States airports.

The Port Authority is responsible for operating the New Jersey/New York metropolitan area's airport system, which includes John F. Kennedy International, Newark International, and LaGuardia Airports. Last year these airports served over 74 million passengers, almost 22 million of which were traveling to or from overseas destinations. These passengers represent 5.5 percent of the total domestic and 28 percent of the total United States overseas traffic. Our airports are served by over 100 United States and foreign flag carriers providing service to 1508 cities with a total of 15,000 nonstop flights per week. Unfortunately, the statistics as far as noise impact is concerned are equally large.

An analysis produced by the FAA in the late 1970s indicated that aircraft operations at our three airports affected over 2 million people, roughly one-third of the total noise-impacted population in the United States at that time. Since then, as reported previously, the number of people living within our noise impact contours has been reduced by almost 1.5 million by the elimination of the noisiest non- certificated Stage 1 aircraft. We estimate, however, that the almost 630,000 people living in communities around our three airports still represent one-third of the total noise-impacted population in the United States.

The Port Authority has long been a leader in the fight against aircraft noise, beginning in the early 1960s with our single event noise limit and going right through the 1980s with our cumulative noise rule mandating the early phase-out of Stage 1 aircraft. Just recently, we enacted a nighttime noise rule prohibiting the addition of Stage 2 aircraft during the noise-sensitive late night hours. Although the Port Authority and other airport operators have been somewhat successful in reducing the impact of aircraft noise on surrounding communities with a variety of local measures, the only truly satisfactory solution to the aircraft noise problem is source noise control—that is, reducing the noise generated by individual aircraft operations to the extent technically and economically practical, using available technology.

The Port Authority was among those who argued for a national phase-out schedule for Stage 1 aircraft such as the 707 and DC-8, the operation of which was essentially terminated on January 1, 1985 as a result of the Aviation Safety and Noise Abatement Act of 1979. Since 1985 we and other noise-affected airports, individually and through the Airport Operators Council International, have testified in support of a national phase-out program for Stage 2 aircraft, which have greatly increased both in numbers and in operational frequency as a result of hubbing service patterns which

emerged from airline deregulation. Early next week the Port Authority will be testifying before the House Aviation Subcommittee in support of a national Stage 2 phase-out program to be completed by December 31, 1999. The Port Authority and the Airport Operators Council International also support H.R. 5170, the aviation reauthorization measure which provides $255 million in fiscal year 1991 and $269 million in fiscal year 1992 for research, development, and engineering. As I am sure you realize, and this has been said before, ultimately the present need for phase-out of Stage 2 will not be enough.

In addition to phasing out the noisiest operating Stage 2 aircraft in today's fleet, research should be continued to establish noise certification standards, more demanding than those in place today, for future aircraft and growth versions of existing aircraft. The degree to which the quietest of today's aircraft satisfies existing Stage 3 noise standards clearly indicates that the technology is available to produce aircraft that satisfy significantly more demanding requirements. Studies conducted by the Airport Associations Coordinating Council indicate that worldwide, the benefits of a conversion to a total Stage 3 fleet in terms of the reduction in the number of residents noise-impacted will be offset by the increased level of operations that will be required to handle future demand. That will be the case unless still quieter aircraft noise standards are imposed for new aircraft and for growth versions of current aircraft.

We recommend that NASA and FAA be directed to conduct in-depth analyses of the feasibility of increasing the stringency of noise certification standards and that these standards be established as they are technologically feasible and economically reasonable.

We also believe that application of new technology to airport congestion relief can also serve to reduce noise. As the committee will recall, the Port Authority has been an advocate of the civil tiltrotor as the aircraft that can significantly increase the capacity of the United States air transportation system and reduce delay at heavily congested airports. The tiltrotor can also, if properly developed, reduce the severity of the aircraft noise problem in the United States. The steep approach and departure profiles and the maneuverability of the tiltrotor can permit the aircraft to operate into and out of city center locations without significantly affecting sensitive adjacent land uses. Similarly, the tiltrotor will be able to operate into and out of major U.S. airports away from the main runways without affecting adjacent communities. This committee's—your committee's—efforts to preserve civil tiltrotor development are to be commended and should be continued.

In summary, I would like to encourage your support for analysis of the feasibility and eventually the development of new, more stringent aircraft noise certification standards. I would also recommend the committee's continued support for the civil development of a tiltrotor aircraft because of its noise mitigation measures.

Finally, I thank the committee for this opportunity to express our views on this important issue of noise.

[The prepared statement of Mr. Klenk follows:]

STATEMENT OF

THE PORT AUTHORITY OF NEW YORK AND NEW JERSEY

ON

AIRCRAFT NOISE

BEFORE

THE U.S. HOUSE OF REPRESENTATIVES
SCIENCE, SPACE AND TECHNOLOGY COMMITTEE
SUBCOMMITTEE ON TRANSPORTATION, AVIATION AND MATERIALS

September 27, 1990

Richard F. Klenk
Assistant Director of Aviation
The Port Authority of New York & New Jersey
One World Trade Center/Room 65 West
New York, New York 10048

Good afternoon. We appreciate the opportunity to express our views on the issue of aircraft noise and, in particular, on the research and development that should be pursued in the future to reduce the impact of aircraft operations upon the communities surrounding major United States airports.

The Port Authority is responsible for operating the New York/New Jersey metropolitan area's airport system which includes John F. Kennedy International, Newark International and LaGuardia Airports. Last year, these airports served over 74 million passengers, almost 22 million of which were traveling to or from overseas destinations. These passengers represent 5.5 percent of the total domestic and 28 percent of the total United States overseas traffic. Our airports are served by over 100 United States and foreign flag carriers providing service to 150 cities with a total of 15,000 nonstop flights per week. Unfortunately, the statistics, as far as noise impact is concerned, are equally large.

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The Port Authority was among those who argued for a national phase-out schedule for Stage 1 aircraft, such as the B-707 and DC-8, the operation of which was essentially terminated on January 1, 1985 as a result of the Aviation Safety and Noise Abatement Act of 1979. Since 1985, we, and other noise affected airports, individually and through the Airport Operators Council International, have testified in support of a national phase-out program for Stage 2 aircraft which have greatly increased both in numbers and in operational frequency as a result of hubbing service patterns which emerged from airline deregulation. Early next week, the Port Authority will be testifying, before the House Aviation Subcommittee, in support of a national Stage 2 phase-out program to be completed by December 31, 1999. The Port Authority and the Airport Operators Council

International also support HR 5170, the aviation reauthorization measure which provides $255 million in Fiscal Year 1991 and $269 million in Fiscal Year 1992 for research, development and engineering. As I am sure you realize, ultimately the present need for phase out of stage 2 will not be enough.

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the aircraft that can significantly increase the capacity of the United States air transportation system and reduce delay at heavily congested airports. The tiltrotor can also, if properly developed, reduce the severity of the aircraft noise problem in the United States. The steep approach and departure profiles and the maneuverability of the tiltrotor can permit the aircraft to operate into and out of city center locations without significantly affecting sensitive adjacent land uses. Similarly, the tiltrotor will be able to operate into and out of major U.S. airports away from the main runways without affecting adjacent communities. This committee's efforts to preserve civil tiltrotor development are to be commended and should be continued.

In summary, I would like to encourage your support for analysis of the feasibility and eventually the development of new, more stringent, aircraft noise certification standards. I would also recommend the Committee's continued support for the civil development of a tiltrotor aircraft because of its noise mitigation potential. Finally, I thank the Subcommittee for this opportunity to express our views on the important issue of aircraft noise.

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Mr. TORRICELLI. Thank you, Mr. Klenk, and let me also commend the Port Authority for the very special, important, almost unique emphasis it has placed on planning for infrastructure and use of tiltrotor technology in the future. It is unfortunately not being mirrored around the country. The Port Authority is not only in leadership, but I think doing more than anywhere else in the advancing of this technology and the local transportation infrastructure, and you are to be commended for it.

Mr. KLENK. Thank you, sir.

Mr. TORRICELLI. Mr. Webb, do you agree with the analysis that, given a stringent Federal standard, there can be replacement of Stage 2 aircraft by the turn of the century?

Mr. WEBB. It is possible by the turn of the century for the commercial fleet to be within Stage 3 compliance.

Mr. TORRICELLI. It is possible in your judgment?

Mr. WEBB. Yes.

Mr. TORRICELLI. For any member of the panel, if the Government did not intercede into this question by regulation or incentive, when in the natural course of events is that likely to happen, given market forces as we now know them?

Mr. WEBB. Market forces as we now know them, I think, would lead to a Stage 3 fleet sometime after the turn of the century.

Mr. TORRICELLI. How much after?

Mr. WEBB. Oh, I would just be guessing. Sometime in the second decade. As I pointed out in my testimony—

Mr. TORRICELLI. The FAA says 2010. Is that an estimate that you—

Mr. WEBB. I wouldn't disagree with that.

Mr. TORRICELLI. What, Mr. Webb, do you consider dollar for dollar the best investments in technology to reduce noise of total aircraft? What is the best place for emphasis?

Mr. WEBB. For future technology?

Mr. TORRICELLI. Yes.

Mr. WEBB. I would say that the area of fan noise reduction ought to be the primary target for advanced research. The industry has essentially gotten jet noise, which was the most difficult, down to a floor now where there is very little to be gained there, so I—

Mr. TORRICELLI. So you believe the next emphasis should be the fan noise?

Mr. WEBB. Yes, I do.

Mr. TORRICELLI. Do you agree that it is possible to reduce by 10 decibels the total noise from aircraft?

Mr. WEBB. I don't know how to do that.

Mr. TORRICELLI. As a technical matter, you don't see how it is they arrived at that conclusion?

Mr. WEBB. I personally don't know how to do that. It would take a great deal of work and research to do that.

Mr. TORRICELLI. Mr. Fleming, tell me about what, at the moment, what kind of planning you think airlines are doing for adjustment. What is it they are expecting to happen to the marketplace and to the regulatory environment as they are looking down the road?

Mr. FLEMING. Mr. Chairman, as you noted in reading our statement about the essential elements of the national noise policy, we

agree there needs to be, as an essential element of that policy, a date agreed for phase-out of Stage 2 aircraft.

We don't know, as an industry, what that date should be. There have been a number of economic analyses conducted as to what an economically viable date might be; Mr. Mead referred to several of those studies.

I think this area needs a great deal of additional attention. The situation varies dramatically from airline to airline for the obvious reason that some airlines are favorably positioned with respect to capitalization and operating margins compared to some others that are in very perilous straits.

I think the very rapid increase in the cost of fuel in the last several months has literally turned planning on its head in the airline industry. I read in this morning's Washington Post that USAir, for example, has again deferred delivery of a number of Boeing airplanes. They didn't cancel the orders; they deferred them, and this is the second time that airline has taken that step.

I think inevitably this is going to have to happen with other airlines. I get a little bit concerned when I hear comments to the effect that the manufacturing industry has the capability to replace all those airplanes by any date certain because one can't be absolutely certain that all three of those airframe manufacturers that my airlines primarily buy from are going to be in existence years from now, either. There is just an incredible degree of uncertainty at present that affects that kind of decision-making, and therefore I don't think there's anybody who is well-positioned to give you an answer.

Mr. TORRICELLI. I think that's a sound judgment. Of course, if we set a date for replacement of all Stage 2 aircraft, that would go a long a long way toward guaranteeing the continuation of those three manufacturers at the same time.

Mr. FLEMING. If their customers could pay for the airplanes.

Mr. TORRICELLI. Mr. Klenk, the acquisition of lands near airports, the providing of buffers and elimination of sources of difficulty because of noise impact—to what extent do the Port Authority of New York and similar organizations have programs to do that at the moment?

Mr. KLENK. Well, as you know, being from New Jersey, the Port Authority—all of our airports are really totally surrounded by commercial and residential areas. There isn't much vacant land for a buffer for acquisition, for land banking. The land that is around the airport is zoned for industrial use now, and the Port Authority is looking at it in their land use plans and the new master planning to try to create that buffer zone, where possible.

Mr. TORRICELLI. This, of course, is not the case at Teterboro?

Mr. KLENK. Teterboro is a little bit different, yes, sir.

Mr. TORRICELLI. It's also more important because it's the only one in my district.

Mr. KLENK. And Teterboro is very important. Pan American, which is operating Teterboro, has exactly the same noise standards as the Port Authority. They adopted them—

Mr. TORRICELLI. But the difficulty is that there continues to be suburban residential encroachment on the airport. In fact, the point Mr. Rohrabacher was making before, there are those who

lived there and the problem arrived at their doors; there are those who arrived at the door of the problem. For someone in my position it doesn't make a lot of difference. They complain the same way.

But the purchasing of land on the borders, or certainly intervening to stop communities from placing schools and housing tracts along the runways is something that would go a long way. Is there interest or ability to do so?

Mr. KLENK. I think what we do find—there are three points, I guess, that I could make.

One, and I'll pick LaGuardia because of the impact on the community that the airport has from noise, we have established noise walls around the airport, and it has significantly reduced, by technical measurements, the amount of noise that goes out into the community.

In the area south of Kennedy Airport, for example, new apartment housing complexes are about to be erected, and the Port Authority intervened—not that we had the ability to stop them, but to be absolutely sure that not only the developer but the city, the various agencies, and the communities involved recognize that when these complexes are built, they will be impacted by aircraft noise.

The third point is, in answer to one of the questions you asked before as to when, given the market forces if they are left to their own devices, would the airports allow the phase- out of Stage 2 to go to 2010 or 2020, I don't believe that's what would happen. As you probably know, LAX has taken steps to try to phase out earlier. New Jersey and New York—we are looking at it right now. There are hearings with local community groups within the next two weeks chaired by our chairman, as a matter of fact, Dick Leone, to talk to the industry, the airlines, the community groups to find out a little bit more about the Stage 2 aircraft and the realities, the economic feasibility of starting to phase it out by 1999 or earlier.

Mr. TORRICELLI. The choice for business aircraft and for delivery service at the moment, where to bring that aircraft, the nighttime service and the accompanying noise, appears to be left entirely to an equalized market of landing fees and availabilities that do not reflect the relative value or difficulties from a noise perspective of landing. I'm speaking, of course, particularly of Teterboro.

Why should there not be, in an area such as our own, a master plan where we raise the fees for landing or operations for late-night services, for example, in a place like Teterboro, in order to encourage people to land at more rural airports, and play with the market in such a way as to help find a solution?

Mr. KLENK. I don't think that's a bad solution at all. It's a solution that has been considered. It's just like the question of slot allocations and the fees for slots.

As far as charging the airlines for noise-sensitive aircraft, Stage 2 aircraft, to land at night, what you are proposing is a higher fee so that they don't come in at night. That's what I heard.

Mr. TORRICELLI. Well, a Federal Express, to name a company, that wants to land at Teterboro in the middle of night—rather than prohibitions on people doing so, because indeed I think the airport should be open at least in the evening to some traffic—I

assume that if they had to pay a premium to do so, they would see the wisdom of landing 30 miles further out into a more rural area and driving the distance.

Mr. KLENK. I don't think that's totally impossible.

Mr. TORRICELLI. Not only is it not impossible, it's something we should make possible. Is that within the purview of the Port Authority to do?

Mr. KLENK. As far as the landing fees, the way it is structured right now—and I'll pick on Kennedy, which has a generic landing fee—the total costs which the airport incur are placed onto the fee, and it is a straight line, so much per thousand pounds, as it is at LaGuardia and Newark Airports.

Mr. TORRICELLI. Well, who has the authority to do this at Teterboro?

Mr. KLENK. Pan American World Services is the agency that operates Teterboro for the Port Authority. Pan American World Services would be the one that would impose something like that.

Mr. TORRICELLI. So by renegotiating your lease with them, you would have to make this requirement?

Mr. KLENK. Correct.

Mr. TORRICELLI. Gentlemen, thank you very much.

Mr. Lewis?

Mr. LEWIS. Thank you, Mr. Chairman.

Mr. Webb, when do we get to the point in quieting engines that we aren't going to get there any more? Can we go to higher bypass ratios? What can we do? Do we get to the point where the jet engine is only going to be so quiet, and that's all you're going to do?

Mr. WEBB. You have to get to the point where you don't move the air any more. We're at the point now where the jet velocity is low enough—of course, it has to exceed the forward velocity. If you don't do that, you have a very quiet airplane; you just don't make your appointment. So we're at that point now with jet velocity. I wouldn't want to speculate that—never say never, except when I'm saying that. The jet velocity is pretty much solved. The fan noise is a target area for great noise reduction. For example, if you look at the most recently certified aircraft you will find — I believe it's a 737-400 or -500, I can't remember which— it has very good sideline and cutback noise, but it is challenged by the approach noise. In fact, it is marginal on approach noise, Stage 3. So you can see that that is where the problem is shifting, toward the front part of the engine, toward the fan. So we have some more work to do there, and it is a rich area to seek.

Mr. LEWIS. The fuselage itself—we don't have an airframe manufacturer here, but not all the noise is created by the fuselage—I guess the majority is by the engine, but is there any further work that you know of that's being done on the airframe itself?

Mr. WEBB. I'm not familiar with the details of the airframe work. I would expect that far less noise is made by the fuselage. I think the passengers may hear any boundary layer noise created on the fuselage, but nobody on the ground hears that.

The control systems of the aircraft, the aerodynamic control surfaces and the landing gear are the primary sources, I believe, of

aircraft noise, and it is an area where I'm sure the airframe manufacturers are investigating.

Mr. LEWIS. I'm sure that if we got the engine noise down to a tolerable level, the airframe noise wouldn't matter one way or the other except to the individual that is in the airplane at the time.

Mr. WEBB. I expect you're right. It is an "onion skin" problem. As you strip noises away, you unveil others. We would like, in the engine business, to get down to the point where we can point to Boeing and Douglas and say that it's their problem.

[Laughter.]

Mr. LEWIS. Mr. Klenk, how do you handle the concern by the community at the airports that you're responsible for as far as aircraft noise?

Mr. KLENK. I can probably do best by giving you an example on a community concern that happened at—I'll pick Kennedy Airport as opposed to Teterboro, because the Chairman can give you everything on Teterboro.

At Kennedy Airport, the community was very concerned that some of the aircraft were violating the noise rule, the 112 Pndb's that we had at the airport, and they wanted a way of pinning down the airlines so that they could talk to the airlines so they would know which is the noisiest airline.

An agreement was worked out with the community, with the airline, where there was a surcharge that was placed upon the particular airline or aircraft that violated the noise, and that surcharge, to the tune of $250 per violation, went back into the flight fee, so it became revenue-neutral from the Port Authority's standpoint. But what it did for the community, it allowed them to know, number one, that someone was watching it; number two, it was reported; number three, the community would then get a record and would know that it was an airline, airline A, airline B, airline P. And three, they then have entry into the airline.

From the other standpoint, from the airlines' point of view, the captains don't want their names coming before their particular chairmen all the time, so it has an effect for the community. They feel, as one of the other gentlemen was mentioning before, that someone is watching it, and in truth, someone does watch it. We keep the records all the time.

From the community's standpoint also at the three airports, for each of the borough presidents or the local leaders we have what we call a "Quiet Airline Award" on an annualized basis to bring the community in with a particular airline that has had the best record throughout the year.

So it's not perfect, and we still do get an awful lot of noise complaints, even with the amount of Stage 3 aircraft we have coming to the airport, but we are trying to be very sensitive and trying to become more sensitive, because noise is probably one of our biggest concerns. You can't talk capacity without talking noise, and noise is the one that we're concentrating on now.

Mr. LEWIS. Have you restricted Stage 2 aircraft at your airports?

Mr. KLENK. At nighttime—any additional Stage 2 aircraft at nighttime have now been restricted at our airports, yes.

Mr. LEWIS. Now, when you say "nighttime," is that after 9:00, after 11:00?

Mr. KLENK. From midnight to, I believe, 7:00 o'clock. It could be midnight to 6:00, but it's in that time frame, yes, sir.

Mr. LEWIS. But you do allow Stage 3 to operate?

Mr. KLENK. Yes, we do.

Mr. LEWIS. No further questions, Mr. Chairman.

Mr. TORRICELLI. Gentlemen, thank you very much for your testimony this afternoon. It has been very helpful and very enlightening. Thanks for being with us.

Mr. TORRICELLI. For our third and final panel, if we could: George Brown, Board of Trustees, New Jersey Coalition Against Aircraft Noise, accompanied by Patrick Russell, Attorney for New Jersey Coalition Against Aircraft Noise; second, Thomas Dixon, President of the Baltimore-Washington International Airport Neighbors Committee; and Ed Neafsey, Assistant to the Commissioner, New Jersey Department of Environmental Protection.

Gentlemen, welcome. Thank you for your patience this afternoon and your willingness to be of assistance to the committee and to offer your testimony. As I have indicated to other witnesses, your testimony, if you desire, can be entered into the record in its entirety for distribution to the committee and our colleagues. We would, however, welcome you to make whatever summary that you might want to make. Please do keep it as brief as possible so that we have time for questioning. The lights that are before you will indicate the five minutes allocated for each of the three presentations. Thank you.

Mr. Brown, would you like to begin?

STATEMENT OF GEORGE BROWN, MEMBER, BOARD OF TRUSTEES, NEW JERSEY COALITION AGAINST AIRCRAFT NOISE; ACCOMPANIED BY: PATRICK J. RUSSELL, ATTORNEY

Mr. BROWN. Thank you, Mr. Chairman.

In the interest of time, what Mr. Russell and I have decided to do is to integrate our statements—

Mr. TORRICELLI. Fine.

Mr. BROWN.—so if you will bear with us if I go slightly over five minutes.

I might also say, as a means of introduction, that our testimony, since it is integrated, tends in the first part to be somewhat more emotive, and in the second part to some very specific recommendations which we will review with you very briefly so that there is time for discussion.

I am in fact a resident of Scotch Plains, which is one of the most severely impacted towns in the State. I happen to live six miles from the airport; Mr. Russell is a resident of Far Hills, which is another very severely impacted town. He is 30 miles from the airport.

We thank you for submitting our written testimony for the record.

We are very grateful for the opportunity to give this testimony today. In fact, we speak on behalf of thousands of New Jersey citizens. We are very angry, frustrated, and outraged at the FAA and the abomination they call the Expanded East Coast Plan, and I will

refer to it as "the Plan" from here on out since I'll refer to it frequently.

New Jersey CAAN, this Coalition Against Aircraft Noise, represents citizens in over 220 communities in 18 counties. It covers 4,000 square miles of our Garden State. In a broader sense we really speak for all New Jersey citizens since they will all ultimately be adversely impacted by the plan, either directly or indirectly. Our objective today is simply to give you the citizens' perspective, which is an element that was conspicuously missing today in the very dry, impersonal testimony of the other individuals who testified today, but was not absent, I think, from the responses and questions of this subcommittee, for which we thank you.

The Plan was foisted upon us about three and a half years ago, and it resulted in a never-ending stream of low-flying jets. Contrary to what Mr. Rohrabacher suggested earlier, it was not in fact a case of people moving the urban or suburban area toward the planes. In fact, what the FAA did was move the planes to the suburban areas. It's quite different and quite significant.

Although this was, to use the FAA's description, "the biggest change in air routes in aviation history," there was no environmental evaluation, there was no proper public warning, and there was no public participation. In fact, as a sidebar I would mention that I found the FAA's comment somewhat disingenuous, to put the best light on it, when they suggested that they were surprised that the largest movement in aviation history, the largest change, created a citizen uproar. I leave you to make your own judgment on the accuracy of their statement.

As you are aware, Mr. Chairman, since you were largely instrumental in it taking place, the GAO conducted a study in August, 1988 and issued a report which challenged the purported purpose of the plan, as well as the propriety of its execution, and recommended the appropriate environmental evaluation be conducted. The FAA took no action. There were thousands of complaints filed with the FAA, the Port Authority, and the Department of Environmental Protection in New Jersey. The FAA took no action.

Demands for relief have been made by the Governor of New Jersey, both Senators, Members of Congress, State and locally-elected representatives. The FAA has taken no substantive action whatsoever.

Just two days ago, in a very dramatic display of bipartisan solidarity, Senators Bradley and Lautenberg and Congressional Representatives Rinaldo, Roukema, Payne, Dwyer, Gallo, Smith, and Pallone testified before the Subcommittee on Aviation and demanded relief for New Jersey, and they voiced their support for an intelligent and a just remedy for the problem. The common theme in their testimony was their outrage at the FAA for its intransigence. I am certain that they have encountered, as we have, stonewalling, deception, and outright lies.

It is tragic and it is ironic that the Plan, which the FAA so vigorously defends, is not only an environmental disaster but an operational failure. It was reportedly designed to increase capacity, reduce delays, and enhance safety. Since the inception of the Plan, total traffic at the three major airports decreasing, delays have actually increased. Safety has clearly not been enhanced by creating

multiple layers of air traffic, so thinly separated that the Eastern Regional Administrator of the FAA publicly admitted that he could not discipline the air traffic controllers because of the narrow separation tolerances.

Mr. Chairman, we all know that accidents will occur despite all good faith efforts. It is simply a fact of life. What is frightening is that by virtue of this Plan, the FAA has immeasurably increased the probability of this occurring in a residential area in New Jersey. They have done so by diverting air traffic from over waterways and industrial areas, and routing it over densely populated sections of the most densely populated State in the Nation, New Jersey.

Before unilaterally imposing this threat on New Jersey's citizens, before unilaterally imposing this environmental disaster on New Jersey's citizens, we believe that all alternatives should first have been explored and exhausted. The FAA has not produced a single study, report, or cost benefit analysis to support the Plan, nor did I hear today in the testimony of anyone the cost impact on the citizens of New Jersey, and I speak of only one dimension, and that is declining real estate values.

The FAA spends all of its time and energy and our money protecting the airlines, which are the polluters, and attacking the citizens, who are the victims.

I ask you, sir, is it any wonder that the airlines have done little to reduce noise pollution, when they not are not only defended but actively aided and abetted in their pollution by the very agency which is there to regulate them?

Mr. Chairman, in our written testimony we submitted a list of specific recommendations. With your indulgence I will simply touch on the heading for each, and then perhaps during the questioning period we might address them. I was very pleased to hear, by the way, that the committee had already very much anticipated many of our recommendations.

In brief, we believe that the adequacy of the 3,000-foot rule for environmental assessment as a threshhold should be reexamined. The adequacy of the Ldn as a standard measurement should clearly be reassessed. There should be a standard measurement of noise for areas remote from airports. We are fairly supportive of modernizing the American fleet, moving to Stage 3s. We, too, believe that a citizens' review board should be organized for each FAA region, an independent review board. We believe strongly that the Environmental Protection Agency Office of Noise should be reestablished. The airlines should be forced to spread their flights throughout the day. The proposal by the Air Line Pilots Association for consideration of wayports should be considered. And we would ask also that this committee take a look at and consider supporting the legislative package which was presented at the Subcommittee on Aviation on September 25th.

I might say, sir, in closing that New Jersey citizens, when we're talking cost, are paying a terrible price for the arrogance and the insensitivity of the FAA. They are paying with a decline in the equity of their homes, destruction of their quality of life, constant stress and anger and frustration, and with the forced expenditure of untold sums of money to pay not only for home noise abatement,

but to fund this fight against an agency of our very own Government.

But the most terrible price of all is that so many citizens have had their faith in Government shattered. They have witnessed first-hand the FAA's arrogant disregard for their rights as citizens, and frankly, its manifest disdain for our most respected elected Representatives.

I put it to the members of this distinguished subcommittee, that if the FAA is not stopped now, if the FAA is not required today to go back to the EECP and revise it— in fact, roll it back and not allow it to stand as a fait accompli—you gentlemen and all members of the subcommittee, and all Members of Congress as a matter of fact, can look forward to many more such hearings, only with the testimony being given by your own constituents, since the FAA fully intends to spread this type of plan throughout the entire length and breadth of the Nation.

I thank you very much for your time and your indulgence, and Mr. Russell and I would be pleased to answer any questions.

[The prepared statements of Messrs. Brown and Russell follow:]

Testimony on

FEDERAL AVIATION NOISE POLICY

before

THE SUBCOMMITTEE ON TRANSPORTATION, AVIATION AND MATERIALS

by

GEORGE C. BROWN

MEMBER, NEW JERSEY COALITION AGAINST AIRCRAFT NOISE

1520 Cooper Road, Scotch Plains, NJ 07076

(201) 322-8240

I am grateful for the opportunity to give testimony on behalf of the New Jersey Coalition Against Aircraft Noise (NJCAAN) which represents thousands of citizens in 220 communities and 18 counties, covering over 4,000 square miles of the Garden State. NJCAAN is a grass-roots, community-action organization whose goal is to restore to New Jersey the quality of life stolen from it by the FAA.

During the course of these hearings, I know that you will be given both legal and technical testimony. This is neither. My purpose is simply to provide you with a citizen's perspective of the environmental disaster called the Expanded East Coast Plan (EECP), and to convey to you the anger, frustration,

and outrage of New Jersey residents who have been forced to deal with an arrogant and unresponsive FAA bureaucracy which apparently believes it is accountable to no one.

Three years and seven months ago, with no public warning, environmental impact study or public input, the FAA illegally implemented the Expanded East Coast Plan which was the biggest change in air routes in aviation history. The EECP resulted in the relocation of all existing routes and the addition of 50% more routes over New Jersey, the most densely populated state in the nation. Thousands of citizens in New Jersey who had lived all their lives in tranquil neighborhoods, awoke to the constant roar of low-flying jets -- a never-ending stream, both day and night.

Citizen reaction was immediate and loud, although initially unfocused. Thousands of complaints were filed with the Port Authority and the FAA. But as they came up against a stone wall of obfuscation, misinformation, and arcane technical mumbo jumbo from the FAA -- and no relief -- citizens became outraged. Grass-roots groups sprung up all over the state, and elected officials at the local, state, and federal level were drawn into the issue to seek relief for New Jersey citizens. But they too ran into the same stone wall. The FAA's attitude can best be described as arrogant, disdainful, and dismissive -- arrogant about its power, disdainful of the legislative branch of government and the rights vested in it by the people, and dismissive of its environmental responsibilities.

To this day the FAA has done nothing except tinker with some routes, moving planes from one community to the next in a cynical and obvious attempt to divide and conquer, and pit one community against the next. And the irony of it all is that the EECP has failed to accomplish its primary objective which was to reduce delays. Delays have never been worse at all three New York airports, although traffic has not increased and weather has not been a factor.

The sad fact is that other options were available to the FAA and the airlines for dealing with what they describe as delay and capacity problems. We have no reason to believe that adequate consideration was given to using the ocean, maximizing overflights in industrial areas, or other alternatives which would minimize the adverse effects on the population. These options and others should have been exhausted before an attempt was made to solve the problem on the backs of New Jersey citizens. Perhaps of equal significance is that the root causes of delays were not thoroughly explored. As just one example, Paul Strybing of the FAA said in the Wall Street Journal last year, that the biggest cause of delays is the unrealistic and dishonest scheduling practices of the airlines, particularly the cramming of too many flights into the most popular time slots, thus overburdening the air traffic control system.

It is clear that the FAA and the air transport industry have formed an incestuous relationship, and it is equally clear that this is not in the best interest of the people. Instead of dealing with the true problem which is

noise pollution, and the polluters which are the airlines, the FAA is defending the polluters and attacking the victims of the pollution. Instead of developing regulations and plans to control the pollution and protect the environment, the FAA has elected to expand and increase the pollution, and devotes its energies to rationalizing and defending this approach. As a consequence, the air transportation industry has had no incentive to seriously address the noise pollution problems. It is astonishing that this industry is allowed to operate with such blatant disregard for environmental issues. And we hold the FAA responsible for this attitude.

It is difficult in the limited time available to provide you with any more than a cursory overview of the problem we face in New Jersey. But allow me to sum up briefly. A terrible injustice has been inflicted upon the people of New Jersey by the FAA. It is a travesty of justice not only that the victims of pollution have to bear the cost of expanding the polluters' business, but also that the very agency created to regulate the polluters -- the FAA -- is actively aiding and abetting them in their pollution. The citizens of New Jersey are paying dearly for the expansion of the polluters' business, for the increased capacity and traffic in the nation's air system. They are paying with the unnecessary destruction of their quality of life; with constant stress, anger, and bitter frustration; and with the forced expenditure of untold sums of money to pay for relocation or noise abatement measures in their homes. Our files are filled with letters from citizens whose lives have been shattered by this appalling noise pollution. But the most terrible price

of all is that so many have had their faith in government shattered as they witnessed first hand the FAA's arrogant disregard for citizens and their elected representatives.

It is our hope and belief that when these hearings are completed, this Subcommittee will agree with us that a terrible injustice has in fact been inflicted upon the people of New Jersey and that the remedy should at a minimum include rolling back the EECP access routes over New Jersey; conducting an environmental study in accordance with the letter and spirit of environmental law, and taking steps to insure that the FAA is responsive to the citizens it serves.

We would hope also that the testimony given in these hearings will serve as an early warning of what could lie ahead for you and your constituents if swift and positive steps are not taken to harness the FAA.

This concludes my prepared testimony. On behalf of the people of New Jersey, I thank you sincerely for this opportunity to present our case. I will be pleased to answer any question you may have. Thank you.

George Cormack Brown
1520 Cooper Rd.
Scotch Plains

PERSONAL

Age 54 - Married - three children - Resident of Scotch Plains since 1978 - Wife, Peggy-R.N. Overlook Hospital

EDUCATION

B.A. Psychology, University of Bridgeport
M.A. Psychology, Columbia University

PROFESSIONAL

1989 to present: Craigie Associates - Sr. Consultant - human resource consulting

1987-1988: Peeney Associates, Fanwood - Executive Vice President - executive search

1965-1986: Exxon Corporation - Human Resources Manager - Assignments in N.Y., N.J., Texas, Colorado, Libya, Saudi Arabia and Egypt - labor relations, policy development, compensation, benefits, training, manpower planning, employment etc.

1963-1964: Dunlap & Associates - Staff Scientist - psychophysical research

1953-1963: President, Scottish Enterprises Inc. - promotion of Scottish and Irish festivals
Owner/operator - Royal Window Cleaning Co.
U.S. Army Finance Corp
Bank teller
Player - American Soccer League
Soccer Coach - Greenwich Ct. High School

ACTIVITIES

Current: Mason- 3rd degree - Member, National Soccer Hall of Fame Advisory Committee - Truster, Brown/Wright scholarship fund - Chairman, S.P. Airplane Noise Committee

Prior: Psi-Chi National Psychology Honor Society
U.S. National Soccer Team - Pan American Soccer Team - President KBR Fraternity - University of Bridgeport Soccer and Tennis Coach - S.P.F. Soccer Association-Board member, coach, referee

Statement Made by Patrick J. Russell, Esq.
on Behalf of
New Jersey Coalition Against Aircraft Noise (NJCAAN)
Before the
Subcommittee on Transportation,
Aviation and Materials

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27 September 1990

Patrick J. Russell, Esq.
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F R O N T I S P I E C E

"That which touches us all
should be decided by us all."

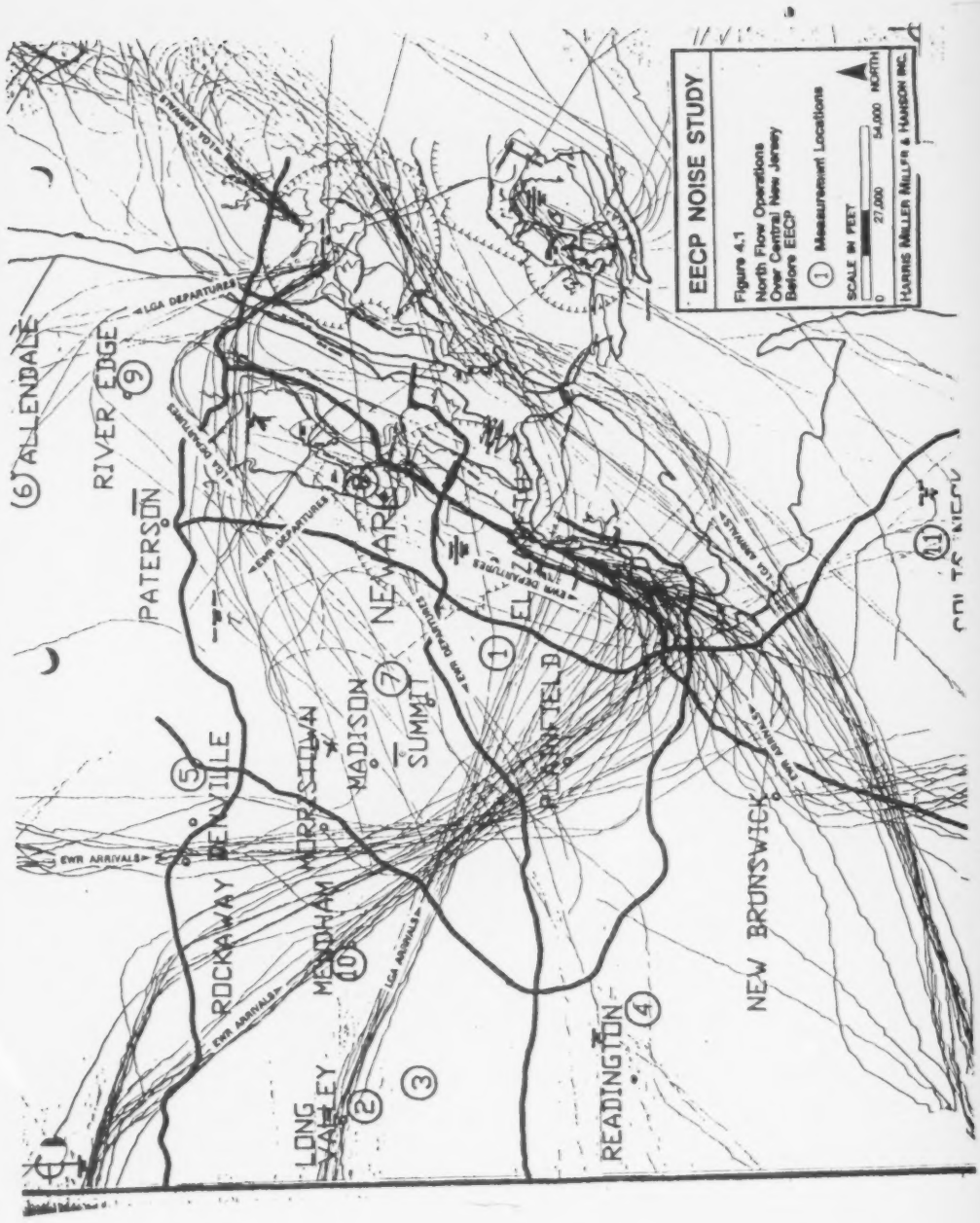
-- Roman Adage

"With regard to national environmental constraints, the CEQ, there was an obvious environmental impact - someone missed the boat on that one."

Daniel J. Peterson
Regional Administrator
Federal Aviation Administration

Public Meeting on Air Noise
Ramapo College
Mahwah, New Jersey

April 13, 1989
8:40 p.m.


EECP NOISE STUDY
Figure 4.1
North Flow Operations
Over Central New Jersey
Before EECP
1 Measurement Locations
SCALE IN FEET
0
27,000
54,000
NORTH
HARRIS MILLER MILLER & HANSON INC.
ALLENDALE
RIVER EDGE
PATERSON
ROCKAWAY
MEADOWLANDS
MORRISTOWN
MADISON
SUMMIT
NEWARK
ELIZABETH
PLAINFIELD
READINGTON
NEW BRUNSWICK
LONG VALLEY
EWR ARRIVALS
EWR DEPARTURES
LGA ARRIVALS
LGA DEPARTURES
TETERBORO ARRIVALS
TETERBORO DEPARTURES
1
2
3
4
5
6
7
8
9
10
11

EECP NOISE STUDY
Figure 4.2
North Flow Operations
Over Central New Jersey
After EECP
Measurement Locations
SCALE IN FEET
0
27,000
54,000
NORTH
HARRIS MILLER MILLER & HANSON INC.
LGA DEPARTURES
LGA ARRIVALS
EWR DEPARTURES
EWR ARRIVALS
JFK ARRIVALS
JFK DEPARTURES
ROCKAWAY
NEW BRUNSWICK
RARITAN BAY
RARITAN RIVER
PATERSON
LONG BEACH ISLAND

The Conflict

On 12 February 1987, the Federal Aviation Administration (FAA) instituted the Expanded East Coast Plan (EECP) that changed air routes throughout the East Coast purportedly to reduce delays in major airports. As part of this plan, aircraft arrival routes and departure routes have changed. In the Metropolitan New York area, the most complex airspace in the world, air traffic has been re-routed over New Jersey, the most densely populated state in the nation, resulting in increases of between fifty to eighty percent.

Since the inception of the EECP, fierce citizen opposition emerged, fueled by the relentless and intolerable noise regularly shattering the suburban and exurban areas in Central and Northern New Jersey, up to forty (40) miles from the Metropolitan New York airports. This environmental assault and the ensuing complaints inspired the New Jersey Congressional Delegation to request the General Accounting Office (GAO) to study the EECP and its underlying logic, reducing delays. The GAO challenged the FAA's purported purpose of the plan, reducing delays, as well as the propriety of its execution. The study recommended the Agency perform the required Environmental Evaluation. Subsequent history, as confirmed by recent New York Times articles, has revealed the complete failure of the EECP to reduce delays in the New York Metropolitan area. Following this study, bills have been introduced in the House of Representatives as well as a Five-Point Plan by Senators Bill Bradley and Frank Lautenberg. Recently, following the re-routing of planes to accommodate the United States Open Tennis Tournament, Governor James Florio of New Jersey demanded from United States Secretary of Transportation Skinner a performance evaluation of the EECP.

Fearing the health and safety of their families is at risk, the equity in their homes is spiraling downward, and their communities are being destroyed,

citizens throughout New Jersey banded together to oppose the dangers and injustice of the EECP. A citizens' group, New Jersey Citizens Coalition Against Aircraft Noise (NJCAAN), comprised of two hundred twenty (220) communities statewide, has been formed and is raising funds for lobbying and possible litigation. According to the New York Times, NJCAAN may be the largest organized opposition to aircraft noise and pollution in the nation's history.

Proposals and Recommendations

NJCAAN respectfully submits the following proposals and recommendations:

* Evaluate the adequacy of the FAA's "3,000-foot rule" as a threshold above which air route and procedure changes do not require environmental assessment or impact statements;
* Review the adequacy of LDN as the standard measurement for determining the cumulative exposure of individuals to noise, including aircraft noise;
* Develop a standard measurement of noise for areas remote from airports, beyond the 65 LDN contour, with low ambient noise levels;
* Require state-of-the-art noise monitoring systems at all major metropolitan airports by the year 1995;
* Modernize the American aircraft fleet - there should be no exceptions to this rule; commercial, private, military, all additions should meet Stage Three (III) requirements. This need to mandate no further additions or replacements of Stage Two (II) aircraft is recognized internationally. The European Economic Community has prohibited the addition of aircraft meeting Stage II noise standards to the registers of any of the Common Market members. Similar action by the United States in this regard will

only put this country in step with what is acknowledged as a necessity in Europe. It would also prevent the dumping of the European noise polluting Stage II aircraft in the United States.

National Aircraft Noise Abatement Trust Fund - In phasing out of Stage II and with the implementation of Stage III standard for aircraft, NJCAAN proposes that no citizen should have to pay to the polluter directly or indirectly to have pollution removed from the environment. Therefore, nothing should be paid over to any plane manufacturer, owner or user as ransom to stop polluting. Rather, surcharges should be phased in over a short period of time and imposed on users of Stage II aircraft, particularly those users flying their planes over heavily populated areas or those users flying in and out of very active airports, and certainly those users that fly over New Jersey.

The proceeds from these surcharges can be used for research and development of non-polluting, quiet aircraft. With technology so developed, new aircraft would provide the standard for future generations of airplanes, as Stage III should today.

The trust fund could also be used to lend money, at market rates with deferred payment schedules, to "hard luck" airlines in lieu of temporary exemptions or waivers for meeting Stage III implementation.

To the extent that the government decides to assist industries implementing technology to reduce noise pollution as well as ongoing pollution, then technology to reduce noise pollution should be considered a desired technology the government should seek to develop;

* Create a Citizens' Review Board for each FAA region with the independence to report back to an appropriate Congressional mechanism;
* Re-establish the Environmental Protection Agency (EPA) Office of Noise. It should be at a level commensurate with current national transportation noise problems and complaints;
* Introduce or support legislation that will force airlines to spread flights throughout the day. This would result in greater safety and less environmental degradation. Under such a requirement, there would be less peak periods for controllers, less pollution from circling aircraft or from those waiting in line for take-off, and less noise pollution because fewer lanes would be necessary. Planes could fly at higher altitudes and not require additional lanes or multi-level lanes to handle peak period volume. Such a policy can be effected by either mandate or by materially surcharging peak landings and take-offs;
* Wayports, as proposed by the Airline Pilots' Association, is a concept worthy of research and review by this Committee. Wayports is a proposal that has some significant support by airlines. Wayports are large, strategically located airports to be constructed in remote rural areas as passenger switching points. The benefits would be a significant reduction in air traffic at major, metropolitan hub airports.
* Support the legislative package listed below as presented at the Subcommittee on Aviation on 25 September 1990:

  - FAA notice for programs and plans to be in non-technical ordinary language and widely and commonly disseminated;

37-095 O - 91 — 6

- Statute of limitations modification granting more time for citizens to sue, and as a deterrent to FAA, require it to plan with a longer statute of limitations;

- Change Council on Environmental Quality (CEQ) regulations by removing agency discretion to perform certain environmental evaluations to require the agency to perform the evaluations;

- National Noise Policy reflective of local control of noise abatement (no national noise standard);

- Modify Equal Access to Justice Act to encourage parity between the FAA and citizen litigants.

* Support any and all bills that require the rollback of the EECP as it relates to the New York Metropolitan area.

Conclusion

The quality of life in this nation depends upon the quality of leadership, and the quality of leadership depends upon a total commitment to principled public policy. To the extent this chain of reasoning guides the foregoing proposals and recommendations, our environment will be protected and the common heritage of everyone in this room and nation will be enriched. I hope all of you can maintain the vision and strength of conviction to carry these burdens for us. The very delicate fabric of our personal, family and community lives depends on you.

Biography

Patrick J. Russell was born in Port Jefferson, Long Island, New York, on 23 June 1947, and is currently an attorney in private practice in New Jersey and New York. He lives with his family in Far Hills, New Jersey, approximately thirty miles from Newark Airport, and is personally affected by aircraft noise.

Mr. TORRICELLI. Thank you, Mr. Brown and Mr. Russell, for your testimony. I appreciate it very much.

Mr. Dixon?

STATEMENT OF THOMAS DIXON, PRESIDENT, BALTIMORE-WASHINGTON INTERNATIONAL AIRPORT NEIGHBORS COMMITTEE

Mr. DIXON. Thank you very much, Mr. Chairman. I am Thomas Dixon of the BWI Neighbors Committee.

I am going to bypass discussion of the master plan and bypass discussion of the Stage 3, if you will allow me to, to save time.

The Neighbors Committee at BWI, established 11 years ago, of which I was a member—I was Vice President of that Committee 11 years ago, and of course, President for the next couple of years—the Committee is designed to work with the principally to see about the problems that are created by BWI within the area itself. We have 11 associations which actually abut the airport, and those civic associations are the actual members of that particular committee.

Our problems have been, one, with the Noise Abatement Office in getting them to adhere, more or less, to what we request that they do, number one. We have been in a constant fight with them for about five years, getting them to get the flight paths straightened out. That was a tremendous situation. After a consultant study of 18 months with a company from New England, they were very happy to concede the fact that we had to develop certain flight paths going out of BWI. That also became part of the Part 150 study that was completed through the FAA.

The Committee then worked with BWI to work through a transition, working with the planning and zoning offices of Anne Arundel County and of Howard County, principally for the reason of being sure that land over which the aircraft would fly would not be developed into residential developments. That turned out to be quite a feat in convincing the airport to work with us in this respect.

We were fortunate to get Anne Arundel County planning and zoning to delay residential development in this area, and that particular tract was zoned commercial. That is ongoing at this present time.

The other aspect of the Committee was working in trying to get the night flight situation straightened out and condensed, at which point USAir has condensed their flights to 9:00 p.m. at night. Of course, the night flights have been reduced down tremendously in regard to certain aircraft.

Now, in connection with the hush kits and the Stage 3, we are fully aware that it is impossible—well, I won't say impossible, but not practical—to reach the deadline for Stage 3 by the year 2000. What we have been advocating basically, what we're going to recommend to BWI at the next meeting and what we have been recommending for the past year to them, is the hush kit application situation. We feel that with the 727-200s and the DC-9s and -10s, if the technology happens to be there, it should be employed. We also feel that since the General Assembly has got a recommendation of the State of Maryland to BWI to come back in 1993 with something

specific that they can do to reduce the acreage and the noise footprint from 12,000 acres to 8,500 acres—we feel it can be dropped below 8,500 acres if this particular technology is applied to the aircraft at this particular time at BWI.

So our direct thrust will be to push the hush kit technology as quickly as we possibly can, providing, of course, that the airlines can afford it.

Our recommendation would be that if the Trust Fund were available to the airlines—not as a subsidy; we don't advocate that—but from the standpoint of lending money to the airlines with interest being paid back if they wanted to use the application of hush kits to reduce the noise at that particular airport, primarily BWI and at other airports around the Nation, we feel that since the technology is there, although some of it is being tested, some would be available, as Mr. Webb mentioned before in other testimony. I've talked to Norden in Tulsa, Oklahoma; they'll have something available for the 737-300 in November of this year. Now, I admit that it increases the weight of the aircraft on the 737-200—I beg your pardon, the 200—by 1,300 pounds, with a fuel increase of 5 percent. But the point here is that if this technology is actually utilized now, where the airports are concerned, you will reduce the contour footprint dramatically over the next three or four years.

We also believe that if this is done, it will also reduce the amount of hostility that you have toward the airport where noise is concerned.

I think I will end my presentation at that point, except to mention the single engine event. One of the greatest problems we have at BWI is trying to get the FAA to give us an indication of the decibels for a single engine event. It's difficult for them to do. I don't know why, but it's difficult. I think if you can establish, as the gentleman mentioned before, about a single engine event happening in the area, it will give you a good indication what you could do as far as the noise decibels are concerned around the airport itself. As he mentioned before, if you actually hush kit that particular aircraft at this time, that single noise event would drop dramatically around the airport.

Thank you.

Mr. TORRICELLI. Mr. Dixon, thank you.

Mr. Neafsey?

STATEMENT OF ED NEAFSEY, SPECIAL ASSISTANT TO THE COMMISSIONER, NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION

Mr. NEAFSEY. Good afternoon, Mr. Chairman and Mr. McMillen. Thank you for this opportunity to testify today.

The problem you are considering today not only affects the peace and quiet of many communities in New Jersey, but also threatens the health and well-being of millions of Americans nationwide. Therefore, your efforts on this issue are to be commended.

On behalf of Governor Jim Florio and the State of New Jersey, I would like to join with the many citizens of our State who are seeking relief from aircraft noise. Noise of this nature is not only a nuisance; it can be a health threat. EPA studies have shown noise to

be an important cause of physical and psychological stress. In an economic sense, noise can also lower real estate values as affected areas become less desirable places to live.

For years, Mr. Chairman, residents close to Newark Airport and across from Philadelphia International Airport in South Jersey have faced incessant high noise levels. During the last three years, thousands of our State's citizens have had to endure additional and excessive amounts of aircraft noise as a result of the FAA's Expanded East Coast Plan.

New Jersey is concerned that environmental needs were not considered in the decisions to put the Expanded East Coast Plan into place. Noise pollution is an environmental problem, yet no Environmental Impact Statement was conducted, despite the fact that the law requires an Environmental Impact Statement when air routes will cause a significant change in activity over certain areas.

The people of our State can attest to the fact—you have heard from some today—that significant changes in noise levels have occurred. Also, numerous studies have been conducted which bolster this fact.

When Governor Florio served here in Congress, he directed both the Philadelphia Airport and the New York and New Jersey Port Authority to conduct noise studies at their respective airports. Limited noise studies were conducted, and those studies showed a high increase in noise at the airports. The noise studies, as well as two General Accounting Office studies, pointed to a number of problems in this area which must be addressed.

When Governor Florio was involved in the 1978 Quiet Communities Act, Congress clearly intended that the Department of Transportation share responsibility with the Environmental Protection Agency for drafting noise standards and providing feedback on the environmental impact of routing decisions. Environmental protection in this area was greatly decreased when funding for the EPA's Office of Noise Abatement and Control was abolished in 1981. The GAO report, conducted at Governor Florio's request and issued in late 1989, found that States had been unable to pick up where the EPA left off. As a result, there has been an absence of environmental protection.

In New Jersey, the DEP has done its best. Our Office of Noise Control has served as an ombudsman for citizen complaints, yet the Department has no ability to control this environmental problem because of Federal preemption.

At the time the Expanded East Coast Plan was implemented, the FAA claimed that the Plan would reduce flight delays and expand capacity. New Jersey is not convinced that these goals have been met. We believe that enough time has passed to evaluate whether the Plan has done what it was intended to do. The Governor has called on the Federal Government to immediately undertake a detailed review by an independent expert of the Expanded East Coast Plan to determine whether the Plan really did have the positive impact on air traffic delays and capacity it was advertised to have.

This examination should also include an in-depth study of the environmental impact of changes in the flight patterns.

In addition, the Governor strongly supports the five- point plan recently announced by Senators Bradley and Lautenberg, and the

State appreciates Senator Lautenberg's comments before you today. The plan calls for greater use of airspace over coastal waters by commercial aircraft; the phasing out of Stage 2 aircraft operations; the development of a national aviation noise policy; and the requirement of an environmental assessment for major route changes.

Though the FAA has expressed an interest in phasing out the noisier Stage 2 aircraft, pressure from the industry and from the Office of Management and Budget have quashed that effort. When Secretary Skinner issued his long-awaited National Transportation Policy earlier this year, it was made known that though his earlier drafts contained statements supporting this phase-out, that section was lost in the final document.

Finally and most importantly, the FAA needs to be directed to be responsive to the concerns of the citizens. There are short-term management actions which the FAA could take immediately to help New Jersey's residents. For example, the FAA's existing procedures at Newark Airport take into consideration some of the noise impacts on communities by attempting to alternate the planes' flight patterns to avoid planes flying one after another over the same residence. We understand that FAA regional staff has admitted to impacted residents that this policy is not always followed, and that controllers find it easier to continue to dispatch planes over the same familiar routes.

This practice is unacceptable and should come to a complete cessation so that residents can at least experience the minimal relief which the FAA included with their plans.

In closing, the State supports increased Federal funding to fully implement the Noise Control Act and to allow local governments to set stricter noise level controls than those set by the Federal Government. We would like to see the EPA's role in noise control resurrected by establishing an EPA Transportation Noise Program that includes periodic review of noise standards, enforcement, and technical assistance to States and local governments.

It is critical to the well-being of our citizens and the future growth of the aviation industry that the Federal Government, which is vested with the responsibility for the Nation's airspace, take bold, responsive actions and identify new, creative ways to address the issue of aircraft noise.

Mr. Chairman, the State of New Jersey applauds your efforts to reduce this pollution at its source, and stands ready to assist you and the subcommittee in that regard.

[The prepared statement of Mr. Neafsey follows:]

TESTIMONY OF

ED NEAFSEY, SPECIAL ASSISTANT

TO THE COMMISSIONER

NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION

BEFORE THE HOUSE OF REPRESENTATIVES

COMMITTEE ON SCIENCE, SPACE, AND TECHNOLOGY

SUBCOMMITTEE ON TRANSPORTATION, AVIATION & MATERIALS

SEPTEMBER 27, 1990

Mr. Chairman, thank you for the opportunity to testify on a problem that not only affects the peace and quiet of many communities in New Jersey but also threatens the health and well-being of millions of Americans nationwide. On behalf of Governor Jim Florio and the State of New Jersey, I would like to join with the many citizens of New Jersey seeking relief from aircraft noise.

Over 7 million people in the U.S. are impacted by aircraft noise. Recent studies show that aircraft, railroad and highway traffic noise is a hindrance to 6.5 million people during conversations, 50 million people trying to sleep and 81 million people trying to relax. The Federal Aviation Administration (FAA) estimates that 3.2 million people live in areas that are incompatible for residential use because of aircraft noise.

Noise of this nature is not only a nuisance - it can be a health threat. EPA studies have shown noise as an important cause of physical and psychological stress. In an economic sense, noise can also lower real estate values as the affected areas become less desirable as places to live.

Mr. Chairman, for the last 3 years, thousands of our state's citizens have had to endure excessive amounts of aircraft noise as a result of the Federal Aviation Administration's (FAA) Expanded East coast Plan. In addition, for years, residents close to Newark Airport and across from Philadelphia International Airport in South Jersey, have faced constant high noise levels.

New Jersey is concerned that environmental needs had no place in the decisions to put the expanded East Coast Plan in place. No Environmental Impact Statement (EIS) was conducted despite the fact that the law requires an EIS when air routes will cause a significant change in activity over certain areas. The citizens here can attest to the fact that significant changes in noise levels have occurred and that numerous studies have been conducted bolstering this fact.

When Governor Florio served here in Congress, he directed both Philadelphia Airport and the New York-New Jersey Port Authority to conduct noise studies at their airports. Limited noise studies were conducted and showed a high increase in noise at these airports. The noise studies, as well as two General Accounting Office (GAO) studies Governor Florio requested, pointed to a number of problems in this area that need to be addressed.

When Governor Florio was involved in the 1978 Quiet Communities Act, Congress clearly intended that the Department of Transportation share a responsibility with the Environmental Protection Agency for drafting noise standards and providing feedback on the environmental impact of routing decisions. When the Reagan Administration abolished funds for EPA's Office of Noise Abatement and Control in 1981, environmental protection in this area was greatly decreased. The Florio GAO report issued in late 1989 found that states had been unable to pick up where EPA left off and the result has been an absence of environmental protection.

Governor Florio has requested Secretary Skinner's personal attention to the issue of aircraft noise as a result of the Expanded East Coast Plan. At the time the plan was implemented, the FAA claimed that the plan would reduce flight delays and expand capacity. New Jersey is not convinced these goals have been met. We believe that enough time has lapsed to evaluate if the plan did what it was intended to do. The Governor has called on the federal government to immediately undertake a detailed review by an independent expert of the Expanded East Coast Plan to determine whether the plan really did have a positive effect on air traffic delays and capacity. This examination should also include an in-depth study of the environmental impact of the changes in the flight patterns.

In addition, the Governor strongly supports the five point plan recently announced by Senator Bradley and Lautenberg to address aircraft noise. The plan calls for greater use of airspace over coastal waters by commercial aircraft, the phasing out of stage 2 aircraft operations, the development of a national aviation noise policy, and the requirement of an environmental assessment for major route changes.

Finally and most importantly, the FAA needs to be directed to be responsive to the concerns of the communities. Just recently, the FAA rerouted airplanes so they would not disturb the U.S. Open Tennis Tournament going on in New York. New Jersey residents have been asking for relief for three years with no significant results but a request to change airplane routes for a tennis tournament was responded to in two days.

There are short term management actions which the FAA could take immediately to help our residents. For example, the FAA's existing procedures at Newark Airport take into consideration some of the noise impacts on communities by attempting to alternate the planes' flight patterns to avoid planes flying one after another over the same residents. We understand that FAA regional staff has admitted to affect residents that this policy is not always adhered to and that controllers find it easier to continue to dispatch planes over the same, familiar routes. This practice is unacceptable and the Governor has urged the FAA to beef up the quality control at Newark Airport so that residents can, at least for now, get the minimal relief the FAA included in their plans.

In closing, the State supports increased federal funding to fully implement the Noise Control Act, and to allow local governments to set stricter noise level controls than those set by the federal government. We would like to see EPA's role in noise control resurrected by establishing an EPA Transportation Noise Program that includes periodic review of noise standards, enforcement and technical assistance to states and local governments.

It is critical to the well being of our citizens and the future growth of the aviation industry that the federal government which is vested with the responsibility for the nation's airspace take bold, responsive actions and identify new, creative ways to address the issue of aircraft noise.

Mr. Chairman, the State of New Jersey stands ready to assist you and the committee in your efforts.

Thank you.

Mr. TORRICELLI. Thank you, Mr. Neafsey, very much for your testimony. Your frustrations with the Federal Government and the FAA are, of course, shared by members of the committee and those we represent.

There is, of course, the issue that there are some airports that are within the powers of the State of New Jersey to assist in regulating and to disperse and control noise, in particular our general aviation airports that are owned by the counties, and particularly the one that I represent in Teterboro where the State has not exercised much of the powers or used the judgments that you are suggesting that the FAA use for those other airports in the region. That has been of considerable frustration to me. I have urged, recognizing that the Florio Administration is still young, but I urged the Kean Administration for eight years to adjust landing fees, as I mentioned earlier, to have some of this general aviation aircraft during late night hours use more remote landing facilities. Could you comment on that?

Mr. NEAFSEY. I didn't want to beg the question, Mr. Chairman, but I was going to comment that the Administration is new. The Governor's Office has been looking into this issue with the Department and it is under consideration. We would like to come forward with something that will lessen the impact of the problem in your area.

If I may just say, I noted your idea earlier today with respect to the use of increased fees in urban areas to provide the necessary incentive for night landings to take place at rural airports, something that I think is a very good idea, and I'd like to bring that back.

Mr. TORRICELLI. This, by the way, is going to be an increasing problem because the Federal Reserve Bank is building a massive facility in southern Bergen County, I'm certain not by chance, because they are going to feed it all night long with canceled checks from around North America landing at Teterboro Airport to go to the Federal Reserve Bank, which is no more than a mile away. I would like to see us do everything possible to make that as expensive as possible so that they seek better alternatives for those landings. But I appreciate your comments very much.

Mr. Brown, Mr. Russell, Mr. Dixon, I take it you are in sympathy with the comments that Mr. Lautenberg and I made earlier about the fact that while I am a great believer in technology and believe that the only answer to aircraft noise is not only through better planning, reflected in your testimony, but in better technology to reduce it, though ultimately elimination of that noise, of course, is not possible. The only thing that can be done is to have a better transportation system, which means that much of the traffic that is now in airplanes in fact should be in trains, and people should not be flying 100 and 200 and even 250 mile distances on full jetliners. That is not a well-planned and integrated transportation system.

The difficulty with that, of course, is that we have our second Administration in Washington that basically does not believe in the support of train transportation or its further development, and we live with that frustration.

I wonder whether each of you, then, as an alternative, share our belief that tiltrotor technology is a better answer in that it is almost immediately available, at least in this century, and in my judgment has far less of a noise impact— particularly for you, Mr. Neafsey, whether the State of New Jersey has interest in engaging in the planning process that the Port Authority is now undertaking to use this as an alternative.

At Newark Airport, using tiltrotor technology to service Washington, Philadelphia and Boston would greatly reduce the impact on the outlying communities. In fact, for those of you who live 30 miles away, it would eliminate it. Is this something that the State can undertake in its own planning?

Mr. NEAFSEY. Mr. Chairman, I believe that it is a good alternative. There may be a number of alternatives to be considered, one of which—at least from our perspective— the Department thought had merit, and that involved the requirement for an Environmental Impact Statement on this noise issue, without any regard to the 3,000-foot level.

Again, though, I would say to you that yes, the tiltrotor technology is something that should be aggressively pursued because it would, at least with respect to certain of the municipalities that are impacted at the present time, take away this problem.

Mr. TORRICELLI. Well, the State could do a great deal to help with this. It need not simply wait and watch for the Federal Government—working on the kind of facilities that would be available at Newark; showing airlines that they would be built; how they would operate; how people would get there. You can help move the marketplace to make this happen. Indeed, whether or not you do so is a good deal of what airlines are looking to see in whether or not they buy them, and manufacturers in whether or not they make them.

Mr. Brown and Mr. Russell, I take it a lot of the things that are of primary interest to you are things that the Congress is generally now undertaking, the 3,000-foot Environmental Impact Statement; this committee's actions in ensuring that there is computer modeling in the future before any of these routes are taken; a more workable and readable decibel level so people know what the impacts of some of these will be; and, of course, this is, after all, not the Public Works Committee but a technology committee, with our emphasis on continued funding for reductions of aircraft noise; and the statements made earlier on the elimination of Stage 2 aircraft.

Those are the emphases of this committee, as they are of this Congress. I take it largely your agenda are things that we already share.

Mr. RUSSELL. Well, we do have some other suggestions, especially with regard to an Airport Noise Abatement Trust Fund, which is the kind of thing Representative McMillen was referring to before, because we believe that citizens should not be the ones who have to pay to take the pollution out of the air.

The Chinese have a great phrase that applies here with regard to the industry objecting to this, and that is that "wisdom begins by calling things by their right name." During the recent Earth Day, polls showed that American citizens were willing to pay for improvement in their environment. Environmental protection does

cost something, so instead of calling it a surcharge we would like to call it an "environmental protection fee."

But nonetheless, if that could be passed on we could use that kind of fund to accelerate, of course, the improvement of Stage 3 and the development of other forms of technology.

One of the reasons we like to advance this as well is to close those exemptions and waivers that certain airlines might try to use—or not use, may have to use—in order to meet the Stage 3 requirements. So that was one of the suggestions that we really hadn't proposed in the other committee as a source of possible funding for other technologies.

There were two other comments I would like to make.

I would like to direct your attention to the gift we gave you before the hearing here.

Mr. TORRICELLI. It's right here.

Mr. RUSSELL. Okay. If you will go to Section 5, right after the Port Authority bond statement on capacity, there is an analysis of the Stage 2/Stage 3 issue in our area, and just for your edification I think it may be valuable. Although we don't always support everything the Port Authority does, we would like to call to your attention—I guess that testifying before Congress they got a little nervous and forgot to inform you that the percentage of Stage 3 aircraft at Newark, as you can see, is 36 percent, and LaGuardia, 25 percent. So we have a severe regional problem here with regard to that.

The only other thing we would like to comment on is with regard to this ombudsman concept that Representative McMillen mentioned. With regard to an ombudsman concept, I had the good fortune to be an ombudsman while I was a law student in an emergency room, and I have some reflections about that. I think it is extremely important. If you are going to entertain that, you might want to use the model used by Governor Cuomo in the State of New York in which, out of his Secretary of State's office, there is a regional ombudsman for every area, reporting directly back to him over any agency. So citizens have the capacity to go to that person.

The important thing about the independence of an ombudsman, rather than having someone inside the FAA as was discussed by Representative McMillen and the folks here on the panel, is that once a person is captive of the official culture, it is very difficult for them to maintain that kind of independence.

Mr. TORRICELLI. There's a lot of precedent for that in the Federal Government.

Mr. RUSSELL. Yes, I know that.

Mr. TORRICELLI. Most regulatory agencies.

These numbers that you cited in Newark and LaGuardia for Stage 3 aircraft operations, in Section 5, how do you account for the fact that the New York area generally is so far below the national standard? Is this because of the operation of these shuttle fleets?

Mr. RUSSELL. I think it's that. I think we all suffer in the northeast from some sort of regional discrimination because of the geopolitics of our Nation. I think that's part of it, too. You can see where the Stage 3 aircraft are, in California.

Mr. TORRICELLI. I don't think there's some airline executive sitting in Houston saying, "Let's send the old planes to New York because we don't like them." There must be a business reason why this is happening. I assume it's because of these short shuttle runs.

Mr. BROWN. No, I think the answer is fairly clear and fairly simple. The fact is that the noise abatement measures at the metropolitan airports are so limited that the airlines simply funnel their Stage 2s—they can do it with impunity — they can funnel their Stage 2s into our airports, where they have to channel their Stage 3s to the other airports where there are penalties. So the logic is simple.

Mr. TORRICELLI. Mr. McMillen?

Mr. MCMILLEN. Thank you, Mr. Chairman. I know we have a vote. I am certainly grateful for the comments of the panel, and I am pleased that Mr. Dixon could be here. I certainly read his testimony with interest.

I made some comments earlier about some of your thoughts about hushkitting and re-engining.

I think that the point that you made, Mr. Russell, was that citizens shouldn't have to pay for it. The point I was trying to make was that if we utilize the Trust Fund for noise abatement and hitting the source, then indirectly the people who are flying are paying for it as opposed to people— certain citizens are paying for it who are utilizing the services of our airlines. Obviously, that's a fair apportionment of cost.

I was just curious, Tom, about your ideas of trying to really come up with incentives for Stage 3 aircraft, that I referred to earlier.

Mr. DIXON. We have been looking at that particular problem, Congressman. I agree with your assessment earlier that you were discussing in that particular aspect of it. The best we can see at BWI at the present time is the year 2000, which we think is inadequate for that particular airport. We also still believe that hushkitting is the way to go in order to accomplish the Stage 3 quiet zone until such point in time that the airlines financially can afford to purchase Stage 3.

I think to delay, as Mr. Webb was speaking of, into the year 2010 is entirely too long, and I also think the year 2000 is entirely too long. BWI is going to expand over the next five to seven years. We have the master plan. We review the master plan every six months, and we see an increase in jet traffic at BWI within the next two or three years. Unless they can mandate Stage 3 at that particular point, I think hushkitting is the way to go.

Mr. MCMILLEN. My question that I raised earlier on another note has to do with the auditor, the ombudsman role that was addressed. One of the problems that our communities around BWI find is that they go to the airport, and there is no adjudication process. You are dealing with technical issues. Where should that ombudsman, where should that authority reside?

Mr. RUSSELL. One of the problems that we had with the idea was, what appropriate Congressional mechanism could you create and have a report back? We were thinking maybe the GAO would be a place to report back to.

Mr. MCMILLEN. Certainly they have the expertise.

Mr. RUSSELL. They would have the understanding, and also they are an extension, of course, of the Congress.

Mr. MCMILLEN. How would you feel about that?

Mr. DIXON. I would agree with that.

Mr. MCMILLEN. You see, there are problems with having that within the FAA, obviously.

Mr. RUSSELL. I would strongly urge—and I'm not here to bash the FAA, but we're talking conceptually here—I would strongly urge to maintain the independence of this kind of person, but the person has to have access and fluency. You really have to have a person who is articulate and fluent in all the things that are going on here, have a range of fluency from citizen to FAA.

Mr. MCMILLEN. I appreciate your refinement of that idea. We're certainly going to continue to work on it from a legislative standpoint.

In addition, I am curious about the ITC idea that I had raised earlier, the Investment Tax Credit for airlines, to encourage them and incentivize them to adopt Stage 3. Is there a pretty unanimous endorsement of that concept?

Mr. BROWN. Congressman, I think either approach, frankly, would be acceptable to us. Whether it's a disincentive or an incentive, whatever brings them to the trough to feed is okay by us because we need some solutions.

Mr. MCMILLEN. I personally prefer an incentive because of the safety concerns involved.

Mr. BROWN. I suspect that might be a quicker solution.

Mr. RUSSELL. That would be our sentiment, but we'd like to think about it more.

Mr. MCMILLEN. Unfortunately, we have a vote. I think this has been a great hearing. I am sorry that I had to run off for a little bit of it, but I really appreciate your coming.

Mr. Chairman, again, I commend you for holding this.

Mr. TORRICELLI. Thank you, and in large part the fact that we've done this today has been at your urging, because of Mr. McMillen's interest in the noise problem, as well as my own, Mr. Lewis', Mr. Rohrabacher's.

Gentlemen, thank you very much. This has been very helpful to us. This is, of course, a research committee, so I hope you understand if our focus was instead on the technology, not the operations. We wanted to spend our time where we can in fact have the most impact. I know that you have participated with the Public Works Committee as well, where there is an operations jurisdiction that in some respects is more attuned to your immediate concerns. Ours are longer-term concerns; not adjusting the problem, not containing the problem, but solving the problem is our own focus.

Thank you very much for all of your participation.

The committee stands adjourned.

[Whereupon, at 4:46 p.m., the subcommittee was adjourned, to reconvene at the call of the Chair.]

APPENDIX

Monmouth
Organization
Against
Aircraft
Noise

660 Tennent Rd.
Manalapan, NJ 07726

September 18, 1990

Science, Space, and Technology Committee:
Subcommittee on Transportation, Aviation, and Materials
Attn: Ms. Sherry Stone
2321 Rayburn House Office Building
Washington, DC 20515

Dear Ms. Stone:

This is a follow-up to our telephone conversation of August 28, 1990 on the NJ aircraft noise problem. I would appreciate your including this letter in the transcript of Mr. Toricelli's September 27, 1990 hearing on aircraft noise. Please note the inclusion of two position statements and five major items in this letter.

As background, I am the Co-Chairman of the Monmouth Organization Against Aircraft Noise (MOAAN). I am also the Technology Advisor to the NJ Coalition Against Aircraft Noise (NJCAAN). NJCAAN is a grass-roots organization representing residents of over 200 NJ towns. These NJ towns have been adversely impacted by relatively recent jet noise imposed on us from the FAA's re-routing of jets under the guise of the Expanded East Coast Plan (EECP). The EECP was implemented in 1987 without an Environmental Impact Study (EIS). The 200+ towns had prior experienced no significant jet noise. Now, we frequently are exposed to jet noise louder than a vacuum cleaner at ten feet distant. It should be obvious that the FAA has in one quick re-routing [redacted], destroyed the tranquil environment of these hundreds of towns. From a [redacted] perspective, I view this as a form of stealing.

MORAL

The EECP jet noise has created undue, major, and long-term stress for millions of New Jerseyans who prior were untouched by [jet] noise. The danger of prolonged exposure (years!) to unwanted and excessive jet noise should be the overriding factor in deciding whether to instal. new or modified jet routes over populated areas. Until such time as it can be proven without any doubt that the jet noise created by the EECP is not harmful to human health, no change of jet routes over NJ should be permitted relative to the pre-EECP routes. I'm all for progress, but not when there is a clear and present danger to human life or even degradation to quality of life.

The Monmouth Organization Against Aircraft Noise (MOAAN) position on jet noise in NJ is:

1. That the EECP was illegally implemented without an EIS, and should therefore be ROLLED BACK and redone to include public input and use of off-shore airspace, as is done in LA. That until the rollback takes effect, the entire state of NJ immediately be designated a "Noise Abatement Zone", thus controlling excessive and arbitrary thrust engine settings; and

2. That Newark International Airport be CLOSED from 10:00 p.m. to 7:00 a.m., as is the case with Washington National Airport. That until this nighttime curfew is implemented, an immediate return to pre-EECP routes be instituted between these hours.

Herewith, my contributions to the Committee:

ITEM I: I believe aircraft noise affects two distinct segments of the geographic population: (1) areas within a few miles from airports and (2) areas relatively distant from airports.

The second category of long-distance-reaching jet noise historically did not exist before the EECP. Thanks to the new and unacceptable philosophy by the FAA, the second category exists. This category derives its existence from the "spread the noise" philosophy of the FAA. This means that "en-route" noise is pushed down to lower altitudes over quieter areas. The aircraft have gained some altitude, but are still climbing at significant throttle, and making much noise. The EECP causes en-route jet noise afflicting areas up to 50 miles from airports. Historically, prior to the EECP, "en-route" jet noise was non-existent.

ITEM II. I wish to go on record as stating that "Stage 3" aircraft will not solve the EECP "en-route" jet noise problem. In NJ, we already have a significant fraction of our overflights as Stage 3, and they still make intolerable noise. An analogy to comparing Stage 2 to Stage 3 jet noise is the following rhetorical situation. Would you rather try to relax with someone shouting in your ears at 10 inches away or 25 inches away from you? Obviously, the answer is neither. One can't relax with either noise level. Stage 3 (or 4)'s benefit will primarily accrue to those living within a few miles of an airport, where aircraft must converge.

The solution to the EECP's en-route jet noise problem, and similar "master plan" attempts, is to revert to the original tried and true jet routes, where people chose the communities they wanted to live in based on the historical quiet of decades. If an alternative set of routes can be negotiable to those affected, i.e., pass muster with an EIS, then the alternate is fine; otherwise, it is not.

ITEM III. The noise metric used by the FAA, the "LdN", is invalid. Despite the Kylander reference below as scientific evidence that LdN is not a valid correlator of "noise annoyance". Therefore, Ldn in general and 65 Ldn in particular is not valid. By induction, Ldn should not be used as a "yardstick" to force unwanted jet noise into the homes of suburban and rural residents, e.g., in NJ.

Since the U.S. DOT has severe environmental controls on creating new interstate highways, so should the FAA for its "highways in the sky". The DOT cannot arbitrarily bulldoze a six mile wide highway and permit major noise to interfere with the lives of residents - without first conducting an EIS and ensuring no significant detrimental effects on those who would be affected. (The FAA states that its "highways in the sky" can generate noise several miles wide on each side.)

ITEM IV. The FAA should not be able to arbitrarily tamper with established jet routes, without an EIS. By tamper, this should include the volume of jet traffic, the altitude of the route, and the throttle setting. Again, see the analogy above to the U.S. DOT and EIS requirements.

ITEM V. I suggest that the National Bureau of Standards conduct a double-blind stucy on "quiet". In the study, subjects would be asked

not how much noise they could tolerate, but how much noise they like. Specifically, questions should be formulated, and test jet noise tapes should be generated, where subjects should be asked "If you had a choice, do you prefer quiet, or a specific level of jet noise?" I can tell you in advance of such tests, that few people - particularly those who live in suburbs and rural areas - would welcome jet noise. If those people are protected from noise from rock bands and industrial noise pollution by local and state regulations, then why should the Federal Government be permitted to ruin the quality of life for those same residents? Also, noise regulations should not be devised for an "average" person, but rather protect all humans.

If an asthma sufferer purposely moved to an area where clean air prevails, then similarly people seeking quiet have chosen their homes and communities for the historical quiet present. Since air quality regulations protect the asthma sufferer, shouldn't the Federal Government similarly protect those who need to have quiet in their lives?

For your information, I am attaching a fact sheet on the NJ jet noise problem.

I recently returned from a two week vacation to several upstate New York cities, including Rochester and Buffalo; and Canadian cities such as Toronto, Ottawa, and Montreal. Without exception, these cities were quieter (jet noise) in their downtown areas than rural Freehold, NJ. I view this as a disgrace and totally unacceptable. The freedom from significant jet noise was obvious in all these cities. There is no reason why massive portions of NJ have been effectively destroyed by aircraft noise, thus making them uninhabitable for human use. The FAA must immediately correct its misactions and roll back the EECP, so as to restore the liveability of central and northern NJ.

Thank you.

Yours truly,

Ron Freeman

Ronald E. Freeman
Co-Chairman
Fax: 201 970-2740

Reference:

R. Rylander et al, "Aircraft Noise Annoyance Contours: Importance of Overflight Frequency and Noise Level", Journal of Sound and Vibration, 1980, volume 69, pages 583-595.

Attachment:
Fact sheet on the NJ jet noise problem

[redacted]mouth
Organization
A gainst
A ircraft
N oise

FACT SHEET
ON JET NOISE IN MONMOUTH COUNTY, N.J.
CAUSED BY THE FEDERAL AGENCY ADMINISTRATION'S (FAA)
EXPANDED EAST COAST PLAN (EECP)

- Historically, most of Monmouth County had no jet noise; prior to the EECP, it was absolutely quiet. Starting in the Fall of 1986, FAA re-alignment of jet routes have caused a substantial increase in jet noise in Monmouth County. Monmouth County is located 30 to 40 miles south of Newark Airport, the closest of the three NYC-area airports.
- EECP has "spread out" the jet noise from the three NYC-area airports (JFK, LaGuardia, and Newark) into prior quiet NJ residential communities. These new, untested jet routes are causing an inundation of jets that fly at low altitudes over suburban and rural NJ.
- The Government Accounting Office (GAO) severely criticized the FAA for not performing an environmental impact study before implementing the most extensive aircraft re-routing in 20 years. (GAO Report # RCED-88-143: "Aircraft Noise - Implementation of FAA's Expanded East Coast Plan", August, 1988; available for free by calling 202-275-6241).
- The EECP was implemented without any prior public notice.
- EECP is creating a dramatic increase in jet noise in communities as far as 50 miles from the three NY/NJ metropolitan airports.
- Jet noise pollution frequently exceeds 77 decibels, and sometimes exceeds 83 decibels. This is louder than a vacuum cleaner at 10 feet from a listener.
- Each jet flyover causes up to 3 minutes of loud, rumbling jet thunder.
- Increased jet noise has degraded the quality of life for many New Jerseyans.
- Jet noise in NJ exceeds the permissible State noise standards for industries operating in a residential area. (NJ Administrative Code: Title 7, Subchapter 1; effective January 18, 1974).
- Night flights are often the loudest flights. These flights start about 10 P.M., continuing throughout the night, past 2 A.M. These flights are cargo flights, using older (noisier) jets, are frequently heavily loaded (thus requiring increased thrust settings), and generate the worst noise. It is often difficult to sleep because of this night-time loud and frequent jet noise.
- The safety of [redacted] has been severely compromised. As many as 10,000 commercial jets per month f[redacted] a given community in Monmouth County. This increased number of jets flying at low[redacted] increases the chances for a mid-air collision, causing an aircraft crash in a residential nei[redacted]hood.
- The jets are pumping dangerous air pollutants into our atmosphere including: hydrocarbons, sulfur oxides, nitrous oxides, carbon oxides, and particulates.
- More than 1,252 TONS of air pollutants per year is being dumped on Monmouth County alone.
- The EECP has contributed to the increase in air pollution which is responsible for: (1) an increase in bronchitis, pneumonia, chronic lung diseases, and lung cancer, (2) degradation of cardiovascular function, including deficiency of oxygen in both the lungs and blood, (3) an increase in eye irritation, (4) increased smog and acid rain, and (5) a decrease in the ozone layer.
- 15,000 NJ residents have signed a petition to stop EECP.
- While the EECP affects air routes serving JFK, LaGuardia, and Newark Airport: NJ is the only state in which these new air routes and noise pollution are placed. NY and Conn., which both benefit economically from the airports, are not sharing the noise burden. NJ is being unfairly singled out. Further, not all NJ communities are bearing the brunt of the jet noise problem; some

NJ communities not absorbing their fair share.

- The FAA has refused to provide documentation showing why it can not use:
  - — Ocean routing, which is environmentally preferable to the EECP's inland NJ routes.
  - — Pre-EECP routes for night flights.
- The FAA has not provided justification for its "65 LdN" noise standard. This "standard" is based on statistical averaging. For example, it asserts that humans perceive five loud sonic booms in one hour the same as a radio playing constantly at a low volume setting for the same one hour. Humans do not react to statistical averages; they react to each noise event. Therefore, the 65 Ldn "standard" is scientifically invalid.
- The FAA has refused to implement immediate noise abatement procedures that could be put into effect as an interim solution.
- The FAA has refused to provide documentation that specifies the surplus capacity available using pre-EECP flight paths.
- FAA has not proved that airport delays have been improved as a result of EECP.
- The EPA and National Bureau of Standards state: " To select a quiet residential area ... [a house should be] located at least 15, and preferably 20, miles away from the jetport before the noise from jetcraft flyovers would be relatively unnoticeable." Now, communities as far as 50 miles away are experiencing disturbing jet noise pollution.
- The EPA also states that: "buildings would have to be a lateral distance of about 3 to 4 miles from the flight path before noise would drop to a tolerable level". Therefore, jets flying at 3,000 feet above our homes violate this standard.
- The FAA's quick-fix is the newer, "quieter" Stage 3 aircraft which will be exclusively operated by the year 2015. Until then, today's noisy, older aircraft (Stage 2) will be operated. This is not a solution to the NJ jet noise problem. Nor will 100% use of Stage 3 aircraft adequately remove the now excessive jet noise.
- The FAA tried at least two "scatter" plan tests nationally and both failed, resulting in immediate roll-backs. In November 1983 at Washington (DC) National Airport, and in August 1987 at Seattle-Tacoma (Washington State) Airport, the FAA learned that trying to "spread" jet noise from historical aircraft routes does not work and causes a huge public outcry. Also important is that the noise levels created by these new jet routes, were before-hand deemed acceptable by the FAA (using its 65 Ldn "standard"), yet the public outcry was huge to stop this new jet noise. Therefore, the 65 Ldn "standard" is not reasonable for prior quiet non-urban areas.

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Aircraft Noise & Its Effects on Health

7-9-90
R. Freeman

SUMMARY

Aircraft [redacted] pollution is [redacted] to one's health. Aircraft noise can cause an increase in hypertension, blood pressure, cardiovascular disease, and gastric disease. Also, aircraft noise can increase anxiety and stress; interfere with sleep and relaxation; and produce serious psychological problems and mental disorders. Aircraft noise has been implicated in decreased birth weight of infants, when the pregnant mother was exposed to aircraft noise.

Like cigarette smoke pollution, it is dangerous to expose humans to aircraft noise pollution ~~where it can~~ and should be avoided.

HYPERTENSION - blood pressure and hypertension

"The Deutsch Forschungsgemeinschaft ... in its research report on Effects of Aircraft Noise [concluded] '[jet] noise constitutes a health risk ... a risk factor for essential hypertension can be presumed' " . IV.

"Exposure to ... aircraft ... noise caused an increase of diastolic blood pressure". VI.

"The taking of antihypertensive agents [drugs] ... was much higher in [areas with higher jet noise] ". VI.

"There might be a cumulation of effect by repeated exposure for long periods. Pathological effects (i.e., hypertension) may result, first in those subjects which react more strongly to noise exposure or in subjects exposed also to other stressors with similar effects." IX.

HYPERTENSION - cardiovascular disease

Based on a community cardiovascular survey:

"In areas with more aircraft noise, more people were under medical treatment for heart trouble and hypertension and ... took cardiovascular drugs. ". V.

Based on a study on the relation between aircraft noise and the contact rate with the general [medical] practitioner:

"For cardiovascular drugs, a ... trend was found ..." [that the taking of these drugs had gradually increased to twice the initial amount; the increase continued even after there was a change of jet routes which removed nearly all aircraft noise during the night.] VII.

"Noise can influence cardiovascular functions; especially the increase of diastolic [redacted] pressure is striking." VIII.

HYPERTENSION - [redacted] problems

Regarding "antacid [redacted] prescription, in a period of six years [of new aircraft noise] the purchase had gradually increased to twice the initial amount; the increase continued during the years, when there was almost no aircraft noise during the night." VII.

"The data on antihypertensive agents complete the evidence that aircraft noise is a risk factor to hypertension". This can be manifested by - but not limited to - gastric ulcers. VII.

[Aircraft noise] "may be a causal factor to stomach complaints and to hypertension". VII.

[redacted] is "a higher incidence of nervous diseases in very noise areas". VI.

GENERAL MEDICAL PROBLEMS

"The contact rate [between doctors and affected people] for spastic colon and for low back pain was about two times higher in ... " Careful

higher [redacted] VI.

BIRTH WEIGHT

"Birth weights of 902 infants were related to aircraft noise levels to which the mother was exposed in pregnancy. The results ... [suggest] that aircraft noise can decrease birth weight.". X.

SLEEP AND GENERAL HEALTH RISKS

"In areas with more aircraft noise, the use of sedatives [sleeping pills] and hypnotics ... was higher." VI.

"In the [jet] noisy village the purchase of hypnotics and sedatives [prescription drugs] had increased in the period after the beginning of aircraft noise, and decreased again, when the number of night flights was diminished." VII.

This study "suggests that aircraft noise has a harmful effect on sleep". VII

"Aircraft noise can cause sleeping disturbances and mental disorders, especially when there is much noise in the night too." VII.

"Aircraft noise diminishes the possibility to communicate and can cause [redacted] feelings of alienation and anxiety". VIII.

MENTAL DISORDERS

There was "found a higher admission rate ... to a psychiatric hospital in relation to aircraft noise." VIII.

With aircraft noise, "the [medical] practitioner was confronted with [patients having] ... serious psychological problems and with psychomatic symptoms ..." VI.

"The higher contact rate [by residents in jet] noisy areas [seeing their physicians] was especially clear for mental disorders". VI.

"This result suggests that aircraft noise can be a causal factor to mental disorders, especially when people suffer from sleep disturbances." VI.

"Moreover, [from a study of humans subjected to aircraft noise that] it is suggested that aircraft noise during the night has a strong impact on mental health in the daytime". VIII.

OVERALL

"[From] the results of ... studies on medical effects of aircraft noise, ... the conclusion is ... that aircraft noise ... constitutes a very serious threat to public health in all its aspects: [affecting] well-being, mental disorders, somatic symptoms and diseases (especially cardiovascular diseases)." VIII.

"In conclusion, this general practice survey indicated strongly that aircraft noise increases the contact rate with the G.P. for psychological and ... psychosomatic problems." VI.

"A higher taking of psychotropic drugs among patients in [jet] noise areas was found. One of the G.P.s [general practitioners] commented [on] this by saying ... 'The place is overwhelmed by aircraft noise ... we can only prescribe drugs.' " VI.

SEVERAL CAVEATS

"Environmental ... standards should not be based upon the average effect in a group of subjects, because 'average human beings' do not exist, but [rather] subgroups within the population [may be susceptible] to jet noise ill effects..

'...alth includ... ... absence of disease [but also] 'well-being'".
VIII.

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NATIONAL BUSINESS AIRCRAFT ASSOCIATION, INC.

STATEMENT OF JONATHAN HOWE OF THE

NATIONAL BUSINESS AIRCRAFT ASSOCIATION

BEFORE THE

SUBCOMMITTEE ON TRANSPORTATION, AVIATION AND MATERIALS

OF THE

COMMITTEE ON SCIENCE, SPACE AND TECHNOLOGY

SEPTEMBER 27, 1990

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Mr. Chairman, members of the Subcommittee, I am Jonathan Howe, president of the National Business Aircraft Association, an association representing nearly 7,000 companies which use business aircraft.

I appreciate this opportunity to express the views of business aviation as they relate to the issue of aviation noise reduction. Let me start with some specific comments, followed by a broad-based statement on noise policy.

STAGE 2 BAN

In general, the widely discussed phase-out of Stage 2 aircraft beginning in 1999 is reasonable. The already well established recognition that most Stage 2 aircraft weighing less than 75,000 lbs. make no more noise than many larger Stage 3 aircraft must continue. The European Community has adopted a 75,000 lb. exemption to the phase-out of Stage 2 aircraft, and it appears that the U.S. will do likewise.

Although a phase-out of Stage 2 aircraft beginning at the end of this decade would be reasonable, at the same time a firm stand must be taken against efforts of individual airports to ban Stage 2 operations ahead of the federal schedule. There have already been some alarming developments in this regard. An egregious example is the current ban on Stage 2 operations for all aircraft regardless of size at Long Beach, California. That airport could be serving as a major reliever for Los Angeles International. Instead it is driving traffic away to other airports that have their own noise concerns and may be tempted to follow suit. If individual airports are allowed to create their own timetables for phasing out Stage 2 aircraft, the result could be a proliferation of local bans that seriously undermine the federal plan.

Any consideration of Stage 3 restrictions are entirely premature. There has been no discussion with the industry and such restrictions would cause profound shock undermining the credibility of a national noise policy. The Stage 2 issue must be disposed of first. Stage 3 limitations are tantamount to airport curfews, since there is nothing quieter.

PART 150 STUDIES

The best way for an airport to address legitimate noise concerns of its neighboring communities is through the FAA Part 150 study. This also assures a balance between local and national interests. Such studies which are now voluntary should be made mandatory before any local noise restrictions can be implemented. FAA approval of the study must continue to be a part of this process.

FINANCIAL INCENTIVES

Financial incentives through AIP should be expanded to provide additional funding for implementation of Part 150 findings and other local actions such as zoning and easements which assure compatible land use. Of course no airport money should be allowed to go "downtown" or otherwise off the airport.

THIRD PARTY ACTION

A third party right of action is an indispensable measure to assure fairness to users in all airport matters, including noise.

FEDERAL LIABILITY

The fears of vastly increased federal exposure to noise related liability have been greatly exaggerated. Damages for such suits are already small, and importantly, are decreasing. Recent case law suggests further limitations exist in this area. Liability of

the Federal government is not likely to turn on the presence or absence of a national noise policy, especially if the government undertakes a regulatory and policy role as opposed to a proprietary one.

Today, noise is forcing a fragmentation of our national air transportation system. The lack of a national and uniform policy at airports across the country is unravelling our best efforts to find more capacity in an already strained system. The multitude of noise restrictions across the country has caused a "patchwork quilt" of airport access rules and gross inefficiencies in our air transportation system. The situation at Long Beach is but one of a number of examples of local access policies that are currently contributing to these inefficiencies. I think almost everyone will agree that the trend toward a fragmented system of access is not in the interest of the nation as a whole.

Let me make clear that my purpose today is not to assign blame to any group. I fully recognize that airport proprietors, responding to local pressures, have been obliged to fill a vacuum created by the lack of federal guidance and initiative.

None the less, in crafting a noise policy, the Federal government must be given the authority to exercise a greater degree of oversight of our nation's airports to assure a cohesive air transportation system. In so doing, a balance must be struck between the rights of airport proprietors and the needs of the national system.

Let me close by commending the Administration in its refreshing efforts to develop a national noise policy. By all accounts, they are well along in proposing a sound and well-balanced policy.

History reminds us often that the absence of a clearly defined national noise policy, balancing the public interest with that of users and airport proprietors has

resulted in needless confrontation and protracted litigation. With this in mind, I cannot overstate the need for the Administration and the Congress to join in establishing a comprehensive national noise policy.

Mr. Chairman, there is a vacuum in the area of noise, and it is the job of the Federal government to fill this void.

I would like to thank the Subcommittee for this opportunity to express the views of the National Business Aircraft Association on this important issue.

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